

North Highland Forest District

Central Sutherland Land Management Plan 2016 - 2026



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(new planting)
Request for determination under EIA (Forestry) (Scotland) Regulations 1999
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Woodburn north NVC survey results
Woodburn Farm indicative future land use plan
North Highland FD Monument Management Plan

1.0 Setting and context

The management of Forestry Commission Scotland's National Forest Estate is guided by the National Strategic Directions (2013), which identifies six aspirations that will influence integrated land management within our boundaries:

- **Healthy** – achieving good environmental and silvicultural condition in a changing climate.
- **Productive** – providing sustainable economic benefits from the land.
- **Treasured** – as a multi-purpose resource that sustains livelihoods, improves quality of life, and offers involvement and enjoyment.
- **Accessible** – local woodlands and national treasures that are well promoted, welcoming and open for all.
- **Cared For** – working with nature and respecting landscapes, natural and cultural heritage.
- **Good Value** – exemplary, effective and efficient delivery of public benefits.

Drawing on these key aspirations North Highland Forest District (NHFD) have drafted a three year Strategic Plan (2014 – 2017). The plan establishes links with the national priorities underpinning these aspirations, detailing local priorities upon which NHFD plans will be founded. The NHFD Strategic Plan ensures that land management activities complement and enhance the local economic, social and ecological individuality of each LMP area. This plan aims to provide local context to the national aspirations and key priorities by detailing local priorities that will support us in achieving sustainable integrated land management across all areas of the National Forest Estate.

Appendix 1 – The Forest Planning Framework in Scotland gives context to the purpose and scope of this Land Management Plan. In compliance with UKFS this is a strategic indicative plan intended to state the objectives of management and how sustainable forest management will be achieved by signposting the relevant guidance and best practice and spatially identifying management aspirations.

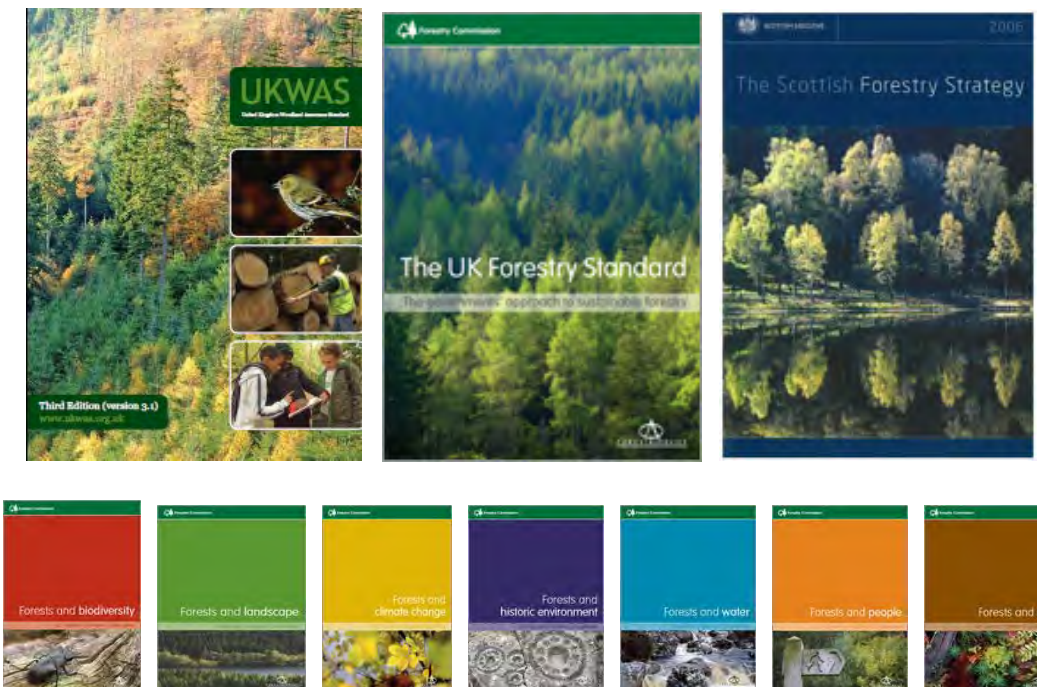
This plan also provides a means to communicate our proposals to the neighbouring communities and stakeholders and serves as an agreed statement of intent against which implementation can be checked and monitored (see **Section 4.4 - FDP Brief** for details of the monitoring proposed).

Appendix 1 indicates the levels of operational plans that sit below, and are informed by this LMP. In compliance with UKFS the operational plans detail specific implementation detail including:

- Potential hazards to workers and forest users
- Operational detail specific to machine use
- Safeguards and mitigation measures to protect the immediate site and, by association, the wider forest
- Detail of post operations planning including the treatment of any waste materials identified.
- Contingency planning

Stakeholders requiring this level of information should contact the North Highland Forest District Operations Team following approval of this plan.

Appendix 2 – Key Policies and Guidance details the external policy drivers for the proposals in this plan. Current industry and FC guidance will be complied with during any operations associated with this plan, including any subsequent guidance revisions published during the plan's ten year approval period.



1.1 History of Plan

The production of Central Sutherland Land Management Plan is the full ten year revision of the following Forest Design Plans (FDPs):

- Inveroykel & Rhelonie 030/516/306 (extended until 19.09.2017)
- Shin & Rosehall 030/516/270 (expires 22.07.2022)
- Kyle of Sutherland 030/516/319 (expires 11.12.2021)

Central Sutherland LMP also contains proposals for Woodburn Farm, acquired in 2014.

Previously the plans had each covered their individual areas however to better address issues of landscape design, water catchment management and biodiversity conservation NHFD have merged the plan areas and the number adopted for the full area is: **030/516/401**. The term 'Land Management Plan' better reflects the wider scope of the document in dealing not only with forestry, but with designated site planning, open ground management, scheduled ancient monument planning and general integrated land management issues. The document's key function remains to seek approval for felling and restocking over the next ten years.

The plan area is situated within the central part of Sutherland, between Lairg, Bonar Bridge and Rosehall. Majority of blocks covered by the plan lie to the west of River Shin, with only 3 blocks (Gunn's Wood, Invershin and Balblair) to the east of it. The southern boundary is River Carron, while Loch Shin marks the northern one; **(see Map 1 Location & Context)**.

The Land Management Plan area covers c. 9898 ha, with significant areas of archaeological features (both scheduled and unscheduled) and sensitive watercourses; the area offers potential for windfarm development and Braemore windfarm proposal is currently at the pre-application stage.

50% of the area is productive forest, 13 % is currently felled in fallow, 16% is open ground, about 20% is under agricultural tenancy, 1% open water, and land under other management is under 1%.

Sitka spruce (*Picea sitchensis* – SS) is the predominant conifer in the productive high forest at over 31% of the stocked area, Scots pine (*Pinus silvestris* – SP) and Lodgepole pine (*Pinus contorta* – LP) have equal share (about 27%) of the afforested area, while Hybrid larch (*Larix x eurolepis* – HL), European larch (*Larix decidua* – EL), and Japanese larch (*Larix kaempferi* – JL) cover just below 7%. Norway spruce (*Picea abies* – NS) covers just below 1%, while Douglas fir (*Pseudotsuga menziesii* – DF) about 1.5%. Noble fir (*Abies procera* – NF), Western red cedar (*Thuja plicata* – RC),

Mountain pine (*Pinus uncinata* - MOP) and Western Hemlock (*Tsuga heterophylla* - WH) are planted in varied mixtures across the LMP area, and together they cover about 1% of the stocked area.

Broadleaf species are under-represented within the LMP area, at 5.2%, with Downy birch (*Betula pubescens*) and Silver birch (*Betula pendula*) as the main components. Rowan (*Sorbus aucuparia*), willows (*Salix* species), Common Alder (*Alnus glutinosa*), Sycamore (*Acer platanoides*) Common beech (*Fagus sylvatica*), Common hazel (*Corylus avellana*), European holly (*Ilex aquifolium*) and Common hawthorn (*Crataegus monogyna*) are also present.



Linside, Rhelonie and Invershin from Tapachy. Photo A.Baranska, NHFD

2.0 Analysis of previous plan

A scoping meeting was held on 14th of May 2015 involving key Forest District staff, to analyse the aims of the previous plan and to agree objectives for the FDP brief. More detail of this meeting can be found in **Appendix IV – Internal Consultation Record**. The key objectives for each plan area are detailed in the table below:

| Forest/FDP | Inveroykel & Rhelonie | Shin & Rosehall | Kyle of Sutherland |
|----------------|--|---|---|
| Objective | 030/516/306 | 030/516/270 | 030/516/319 |
| Climate change | <p>Identify and maximise the benefits of sites with high timber productivity.</p> <p>Increase use of Continuous Cover Forestry.</p> <p>Use Ecological Site classification to guide species choice on more complex soils.</p> <p>Expand the native species element of forests.</p> <p>Target deer control top achieve natural regeneration of native species.</p> | <p>The FD will concentrate productive conifer on appropriate soils, using species that will be resistant to pathogens.</p> <p>The FD will work with Kyle of Sutherland District Salmon Fishery Board to expand the area of riparian woodland, forming an internal network of permanent native woodland habitat.</p> <p>We will continue to enhance riparian woodland by planting of appropriate species. We will ensure that we do not contribute to the decline in status of any water body within or affected by the FDP area.</p> <p>We will prioritise the recovery of the maximum amount of wood fibre from sites where windblow is endemic and soils on which LP provenances are proving unproductive or are suffering from RBNB.</p> | <p>The FD will concentrate productive conifer on appropriate soils, using species that will be resistant to pathogens.</p> <p>PAWS will be enhanced by the expansion of native tree species over an appropriate timescale.</p> <p>We will prioritise the recovery of the maximum amount of wood fibre from sites where windblow is endemic and soils on which LP provenances are proving unproductive.</p> <p>We will continue to enhance riparian woodland by planting of appropriate species.</p> <p>We will continue to work closely with Kyle of Sutherland and District Fisheries Board and SEPA to identify vulnerable areas and strengthen environmental resilience.</p> <p>PAWS will be assessed for suitability for conversion to native tree species.</p> |
| Timber | <p>Identify and maximise the benefits of sites with high timber productivity.</p> <p>Use Ecological Site classification to guide species choice on more complex soils.</p> <p>Increase use of Continuous Cover Forestry.</p> | <p>UKWAS compliance will be maintained by employing sound management principles outlined in the Forest Design Plan.</p> <p>Production will be managed using the FD workplan system and coordinated by the FD programme manager to ensure programmes match forecast.</p> <p>In the absence of Lodgepole pine, nutritional mixtures will include Sitka spruce in mixture with Japanese larch, Macedonian pine and other species appropriate to site and soils. Where possible ALP will be utilised.</p> <p>On less challenging soils alternative species will be used to provide increased yields.</p> | <p>UKWAS compliance will be maintained by employing sound management principles outlined in the Forest Design Plan.</p> <p>Production will be managed using the FD workplan system and coordinated by the FD programme manager to ensure programmes match forecast.</p> <p>In the absence of Lodgepole pine, nutritional mixtures will include Sitka spruce in mixture with Japanese larch, Macedonian pine and other species appropriate to site and soils.</p> <p>On less challenging soils alternative species will be used to provide increased yields. We will use native species appropriate to site on PAWS to achieve commercial density planting.</p> |

| | | | |
|-----------------------|--|--|---|
| | | <p>We will target removal of LP affected by RBNB where survey data suggest that crop decline is affecting an area of the forest.</p> <p>The most marginal sites will not be restocked if inappropriate fertiliser regimes would be necessary to ensure successful establishment.</p> <p>The inclusion of riparian woodland will have a significant impact on the proportion of the FD covered by broadleaf woodland. This will include expanding aspen dominated woodland.</p> | <p>Where soils and exposure allow we will continue to maximise production and quality.</p> <p>We will adopt the use of pathogen resistant species to nurse productive crops to ensure that fertiliser use is reduced.</p> |
| Business development | <p>Develop recreational facilities and increase visitor numbers.</p> <p>Enhance the visual appearance of the forest through detailed landscape design.</p> | <p>We will explore potential for expansion or enhancement of existing facilities in Achany Forest that would add to the visitor experience at Falls of Shin Visitor Centre. Where possible we will work in conjunction with Falls of Shin Management on partnership projects.</p> | <p>We will build on existing links with SYHA Carbisdale, Visit Scotland and Highland Wildcat to encourage higher visitor numbers enjoying high quality experiences.</p> <p>We will expand the trail networks and use visitor zone management to improve the visitor experience. We will benchmark our facilities by visiting similar centres to ensure quality is maintained.</p> |
| Community development | <p>Develop recreational facilities and increase visitor numbers.</p> <p>Consult widely on Forest Design Plans – link with neighbours and community aspirations</p> <p>Enhance the visual appearance of the forest through detailed landscape design.</p> | <p>We will continue to work with the Creich and Lairg Community Councils to ensure that operations and planning decisions are communicated to local residents as appropriate.</p> <p>We will continue to work with Rosehall & District Action Group and with Lairg and District Community Initiative to identify suitable projects and funding opportunities.</p> | <p>We will continue to work with both Creich and Ardgay Community Councils on developments within the forest.</p> <p>We will work to encourage increased use of the recreation infrastructure.</p> |
| Access and Health | <p>Develop recreational facilities and increase visitor numbers.</p> <p>Consult widely on Forest Design Plans – link with neighbours and community aspirations</p> <p>Enhance the visual appearance of the forest through detailed landscape design.</p> | <p>We will continue to strengthen our relationship with the local access officer by regular communication.</p> <p>We will ensure that the status of the Core Path Network is protected during all operations and is enhanced by the forest planning process.</p> | <p>We will provide a diverse range of events, including educational visits and activity taster sessions.</p> <p>We will continue to engage with local groups and community councils to target activity based sessions – for example school Excel groups, teenage female groups and groups with learning or physical difficulties.</p> <p>We will continue to strengthen our relationship with the local access officer by regular communication and we will complete the link to Loch Choire.</p> |

| | | | |
|------------------------------|---|--|---|
| <p>Environmental quality</p> | <p>Expand the native species element of the forest. Target deer control to achieve natural regeneration of native species. Carry out targeted management of key SAP species such as Woodland Grouse. Water quality is an important consideration due to numerous small/medium size watercourses that occur across the site, with a selected few providing water supplies to the crofts on the lower slopes. Small patches of Pine and Birch woodland remnants are located within the afforested area. An area of Ancient Semi-Natural Woodland (ASNW) is located adjacent to the Kilmachalmack Burn.</p> | <p>These forests form a fundamental component of the Kyle of Sutherland Catchment and all operations proposed will be carried out with water quality protection very much for the fore. Both SEPA and the Kyle of Sutherland District Salmon Fisheries Board have been very helpful consultees during the scoping phase of the FDP revision.</p> <p>We will ensure that Forest & Water Guidelines are adhered to and that a robust network of riparian woodland is established.</p> <p>We will design management coupes to enhance the landscape with particular reference to the areas visible from the main tourist routes.</p> <p>We will expand the area of Achany Wood managed under LISS, where soils and exposure indicate this is feasible.</p> <p>The FDP area has abundant archaeology, both scheduled and unscheduled. We will work with both Historic Scotland and the FCS archaeologist to deliver a programme of prioritised protection and conservation work. Operations will ensure that new coupes are surveyed prior to felling to ensure any undiscovered heritage interests are protected from unnecessary damage.</p> | <p>These forests form a fundamental component of the Kyle of Sutherland Catchment and all operations proposed will be carried out with water quality protection very much for the fore. Both SEPA and the Kyle of Sutherland District Salmon Fisheries Board have been very helpful consultees during the scoping phase of the FDP revision.</p> <p>We will design management coupes to enhance the landscape with particular reference to the areas visible from the main tourist routes.</p> <p>The Kyle of Sutherland is rich in archaeology, both scheduled and unscheduled. We will work with both Historic Scotland and the FCS archaeologist to deliver a programme of prioritised protection and conservation work. Operations will ensure that new coupes are surveyed prior to felling to ensure any undiscovered heritage interests are protected from unnecessary damage.</p> |
| <p>Biodiversity</p> | <p>Expand the native species element of the forest. Target deer control to achieve natural regeneration of native species. Carry out targeted management of key SAP species such as Woodland Grouse. Water quality is an important consideration due to numerous small/medium size watercourses that occur across the site, with a selected few providing water supplies to the crofts on the lower slopes.. Small patches of Pine and Birch woodland remnants are located within the afforested area. An area of Ancient Semi-Natural Woodland (ASNW) is located adjacent to the Kilmachalmack Burn.</p> | <p>Forest design will take into account populations of significant species and the importance of water quality. Opportunities to enhance or expand priority habitats within or adjacent to the FDP area will be explored.</p> <p>Full survey of the PAWS within the FDP area will inform the work programme, working towards full restoration.</p> <p>We will utilise a more diverse range of species and continue to promote the expansion of native woodland to enhance biodiversity. This will include supplementary species planting to expand riparian woodland.</p> <p>We will continue to identify opportunities to acquire land locally, adjacent to existing forest, to expand habitat networks. We will work with RSPB to enhance the positive effects of windfarm mitigation works at Rosehall.</p> <p>We will continue our active involvement with local schools and volunteer groups to deliver environmental projects.</p> <p>The Kyle of Sutherland with associated designations and the Caithness and Sutherland Peatlands are adjacent to the FDP area and work will be undertaken to ensure that these sites are not compromised by forest operations. Design will ensure that opportunities to enhance neighbouring designated sites are taken.</p> | <p>We will utilise a more diverse range of species and continue to promote the expansion of native woodland to enhance biodiversity. This will include supplementary species planting at Invershin to expand riparian woodland.</p> <p>We will Enhance riparian woodland throughout the forests and will expand native woodland at Balblair, Invershin and Carbisdale forests.</p> <p>We will continue our active involvement with local schools and volunteer groups to deliver environmental projects.</p> <p>We will restore high priority PAWS on appropriate sites by the removal of non-native tree species over an appropriate timescale.</p> |

| Original Plan Objective | Did the Implementation meet the objective? | Does the objective remain desirable or achievable? |
|------------------------------|---|---|
| Climate change | All forest blocks have suffered from extensive wind damage and DNB infection. Significant areas of infected and damaged conifer crops were clearfelled during the previous plan. Restocking proposal focused on concentrating productive conifers on most productive sites, while increasing areas of riparian and native woodland element. | The objective remains important for all forest blocks covered by Central Sutherland LMP. Clearance of windblow will continue (as the catastrophic storm from January 2015 has inflicted further damage). Riparian planting is still high priority due to the importance of water quality protection within the Plan area. Proposed windfarm in Braemore, if approved, will contribute to renewable energy production targets. It remains an important objective. |
| Timber production | Big scale of wind damage and DNB infection has resulted in big scale felling; many coupes had been felled earlier than proposed in original plans to allow for maximum timber recovery. Restocking aimed to concentrate productive conifers on most suitable sites, increasing areas of riparian and native woodland. | Timber production remains important in all forest block covered by the Plan. We will continue to concentrate productive conifers on most fertile sites. By using watercourses, forest roads, existing and designed open ground as natural coupe boundaries, we will create more wind resilient forests, reducing the risk of catastrophic wind damage in the next rotation. It remains an important objective. |
| Business development | Lairg and Bonar Bridge are the biggest population centres within the Central Sutherland area, with many villages and settlement spread across almost entire area. The Kyle of Sutherland area is a popular visitor destination and visitor numbers peak in the summer. Balblair cycle trails proved to be very popular and are attracting significant number of cyclist. The trails at Carbisdale were more targeted at the SYHA users and local inhabitants, and since the closure of the Carbisdale Castle Youth Hostel, are used by relatively low number of cyclists. Extremely popular Falls of Shin Visitor Centre used to attract high number of visitors to the path network located in Achany wood. Unfortunately, since the catastrophic fire in May 2013, the visitor numbers significantly dropped and currently the area is used mainly by local inhabitants. | Development of local businesses within the Central Sutherland area would be welcomed. The attractiveness of the area (located just outside the Kyle of Sutherland National Scenic Area) draws significant number of visitors, supporting wide range of tourist-related businesses. In 2015 the Kyle of Sutherland Development Trust has secured approval for a new visitor centre on site of former Falls of Shin Visitor Centre. The development will provide employment and will promote the area. NHFD will work with the Kyle of Sutherland Development Trust to help to deliver the project successfully. Probability of an investor buying the Carbisdale Castle and turning it into a 5 star hotel offers further opportunities for local employment; NHFD got permission to sell land around the castle to the investor, once the change in castle ownership is confirmed. It remains a valid objective. |
| Community development | During the previous plan period NHFD has cooperated with local groups and community councils, such as Rosehall and District Action Group (RADAG), Kyle of Sutherland Development Trust, and Lairg and District Community Initiative to deliver local projects. | Still an important objective. We will work with RADAG and other community groups to deliver further projects to meet aspirations of local people. Limited funding available might put more pressure on securing funds from other sources (e.g. grants), therefore the communities will need to take more proactive role in any new projects. All FES forest are open to members of the public under the Scottish Outdoor Access Code 2003, however the District main focus will be on recreational provisions in Balblair as this block is used regularly by both local residents and the visitors to the wider area. NHFD will continue to work with Rosehall local community, which actively engaged in projects aiming at making the forest more accessible and attractive for visitors. |

| Original Plan Objective | Did the Implementation meet the objective? | Does the objective remain desirable or achievable? |
|------------------------------|--|---|
| Environmental quality | <p>Conifers planted right up to the banks of watercourses were in many places felled. New riparian woodland was created in previously open (or planted with conifers) riparian corridors.</p> <p>Operations adhered to Forest and Water Guidelines and other relevant regulations to protect water environment is sensitive and /or important for salmon and fresh water pearl mussel catchments (River Oykel and its tributaries).</p> <p>Extensive areas of conifer crops damaged by DNB infection and /or windblow were cleared during the previous plan period, leading to big, unsightly clearfelled areas, visible from the public roads.</p> <p>Archaeological features are being incorporated into the open ground network. Grazing animals were brought in order to keep the vegetation down on the Kyle of Sutherland Marshes SSSI in order to preserve the unique values of that designated site.</p> | <p>A key objective of the Central Sutherland LMP. We will continue to improve the environment by expanding the native species element of the forest and creating buffers of riparian woodland between the watercourses and productive forest.</p> <p>All future operations will adhere to regulations valid at the time of operations and local agreements with SEPA.</p> <p>The big clearfelled sites give a scope for better coupe design for the next rotation, allowing for more resilient, diverse and visually attractive forest.</p> <p>The heritage sites will be maintained and protected, and further surveys will be carried out prior to operations. We will continue to use grazing as a mean to control vegetation on heritage and/or designated sites.</p> <p>The proposed windfarm in Braemore, if approved, will contribute to Scottish Government's renewable energy production and emission reduction targets.</p> |
| Biodiversity | <p>Significant effort was made during the previous Plan period to protect and enhance water quality in all blocks covered by the Plan. Conifers planted right up to the banks of watercourses were felled, and the riparian corridors either were planted, or are to be planted with native broadleaves, to create riparian woodland.</p> <p>NHFD recognises the impact forest operations might have on sensitive catchments, especially those with freshwater pearl mussel and salmon interests. All operations during the previous plan period were carried out responsively and in line with relevant water protection regulations and local agreement with SEPA and local fishery boards.</p> | <p>A key objective of the Plan. We will continue our efforts to protect the watercourses during the forest operations and to enhance the aquatic environment by creating riparian woodland.</p> <p>The native species element of all blocks covered by Central Sutherland LMP will expand, creating better habitat links.</p> <p>The PAWS will be restored within appropriate time scale; we will seek opportunities to maximise productivity by restocking with native species at commercial densities (subject to site assessment).</p> |

3.0 Background information

3.1 Physical site factors

3.1.1 Geology, soils and landform

Central Sutherland LMP area is dominated by Terridonian sandstone, overlying older Lewisian rocks. The soils are dominated by typical podzols, typical peaty surface-water gleys, with smaller areas of ironpan soils, upland brown earths and bogs. Soil fertility ranges from medium fertility and good nitrogen availability, to very poor, where deep peat is predominant. Implications of the underlying lithology on the establishment of second rotation crops are referred to further in section 3.3.2 Site Capability.

The silvicultural prescriptions and assumptions made in this plan are largely specific to soil types referred to in the Forestry Commission soils classification system described in The Identification of Soils for Forest Management (Kennedy, 2002). This plan area has a wide range of soil types, which fall mainly into the following categories:

| | |
|----------------------------|-------------|
| Brown earth | FC Group 1 |
| Podzols | FC Group 3 |
| Ironpan soils | FC Group 4 |
| Peaty surface water gleys | FC Group 6 |
| Typical surface-water gley | FC Group 7 |
| Juncus bog | FC Group 8 |
| Molinia bog | FC Group 9 |
| Sphagnum bog | FC Group 10 |
| Unflushed blanket bogs | FC Group 11 |

Detailed, reliable soil maps are currently being prepared to assist the Operations team in delivering the proposals detailed in this plan. James Hutton Institute soils data to 250k scale is available, but does not offer sufficient detail to predict the soils type for each coupe. The extent and nature of the soils can be identified where open ground exists, however as Pyatt & Brown 1982 state;

“Due to profound changes in the vegetation which take place after afforestation, which in many places involves it’s complete suppression by the tree canopy, it is implicit that identification of site types cannot be...precise in the established forest”.



Kyle of Sutherland from Carbisdale Castle, looking westwards. Photo: A.Baranska (NHFD)

The implication for this plan is that exact species boundaries will only be defined once clearfell has allowed Forest Management staff to accurately identify soil types on a coupe by coupe basis. The correct prescription can then be matched appropriately to site type, ensuring best silvicultural practice.

3.1.2 Water

All operations on National Forest Estate (NFE) will adhere to the UK Forestry Standard (UKFS), Forest and Water Guidelines (2011), and the Water Environment (Controlled Activities)(Scotland) Regulations (CAR) and the General Binding Rules published by Scottish Environment Protection Agency (SEPA).

SEPA is implementing the Water Framework Directive (WFD) in Scotland which is a legal framework for the protection, improvement and sustainable use of all water bodies in the environment across Europe. All water bodies across Scotland have been assessed for ecological and chemical status and catchment plans have been drawn up to ensure water bodies are brought up to an acceptable level. NHFD lies entirely within the Scotland river basin district, and is covered by the second River Basin Management Plan (2015 – 2027).

The two aims of the Water Framework Directive (WFD) are to improve water bodies to good ecological status/potential by 2015 (or later if this is not feasible) and to prevent any deterioration in ecological status/potential. These objectives apply to baseline and non-baseline water bodies. Under WFD, as well as reaching good ecological status/potential, designated protected areas must meet the standards for which they are designated and have the same objective of no deterioration. Two biggest challenges identified in the second river basin management plan are diffuse pollution and modifications to the physical conditions of water bodies. Operations carried out on the National Forest Estate in North Highland Forest District adhere to the best practice detailed in the Forest and Water Guidelines (FCS, 2011), the Water Environment (Controlled Activities)(Scotland) Regulations (CAR) and the General Binding Rules published by SEPA to support the required ecological protection and

improvement.

North Highland Forest District are aware that it is therefore important that the new proposed planting and forest restructuring, felling etc., including the proposed road construction, does not lead to any deterioration of the water bodies or water dependant areas within the forest plan area and any of the neighbouring water bodies. Appropriate establishment of riparian woodland to maintain buffer strips between commercial conifer plantations and water bodies is a key aim of this plan. The forest blocks covered by the Central Sutherland LMP lie within River Oykel, River Cassley River Shin, River Carron and Dornoch Coastal catchments. None of these catchments suffer from acidification, however there is number of water bodies which are currently not at good or better ecological status and have the potential to be affected by forest operations – please see the table below for details.

| Water body ID | Water body Name | Current classification |
|---------------|--|---|
| 20093 | River Shin (Dornoch Firth to Loch Shin) | Moderate (degraded since previous classification); due to water quality |
| 20082 | Migdale Burn | Poor (no change since previous classification); due to barriers to fish migration |
| 20116 | River Oykel (Dornoch Firth to Loch Craggie) | Moderate (degraded since previous classification); due to water quality |
| 100100 | Loch Migdale | Poor (no change since previous classification) due to barriers to fish migration |



Kyle of Sutherland from Birchfield, looking eastwards. Photo: A.Baranska, NHFD

The water bodies noted on the SEPA RBMP website and minor watercourses identified by NHFD as significant are detailed in **Map 2 – Key Features Forests and Water**. The specific measures proposed to improve the status of the water bodies noted in the table opposite is contained in the **Analysis & Concept Table** of this plan.

River Oykel and River Shin are currently under investigation to determine the nature of diffuse pollution pressures highlighted for inclusion within the second RBMP. Should the investigation reveal that the current downgrades are result of forestry pressures, appropriate action will be agreed with SEPA.

Detail of the proposed riparian woodland that will provide a buffer on all identified watercourses (minimum 30 metres from each bank) is included in the **LMP Proposals** section of this plan and in **Section 6.4 – Management Prescriptions** and **Section 6.5 – Native Woodland Prescriptions (NVC)**.

The watercourses in this plan area have suffered from inappropriate forestry practices in the past leading to pressure from plantations edges too close to watercourses, intensive cultivation and poorly implemented drainage. Given the distribution of commercial forestry within the above mentioned catchments, NHFD acknowledge that appropriate controls on forest operations are vital to improve the current position.

It is recognised that invasive non-native species (INNS) can have impacts on the condition of areas protected under the Habitats Directive for species or habitats important at a European scale and those nationally important for biodiversity. They are recognised as a significant risk to the water environment in the (2nd) River Basin Management Plan for the Scotland River Basin District (2015 – 2027) and in the North Highland area management plan.

Given the possibility of contamination from riparian INNS from upstream populations, any control efforts will always be undertaken with this in mind, and it is proposed that links will continue to be made with existing projects such as the biosecurity plans which are being produced by the Rivers and Fisheries Trusts Scotland. Invasive plants have not been recorded on the National Forest Estate within the plan area to date, however routine survey work will continue throughout the plan period and any occurrence dealt with complying fully with best practice guidance. Work programmes are currently being delivered to reduce rhododendron (*Rhododendron ponticum*) and will continue during the coming plan period. American mink (*Neovison vison*) will continue to be the target of rigorous control.

Water crossings for proposed roads infrastructure will be planned and delivered in accordance with best practice and within the structure of the Controlled Activities Regulations (CAR). It is acknowledged that the storage of oil will be carried out in accordance with the Water Environment (Oil Storage) (Scotland) Regulations 2006.

As a minimum, The Water Environment (Diffuse Pollution) (Scotland) Regulations 2008 General Binding Rules will be followed. These rules cover the storage and application of fertiliser, cultivation of land, discharge of site water, construction of roads and use of pesticides. These are considered operational planning issues and as such mitigation and method are not detailed in this Forest Design Plan, however a robust system of recorded work planning and pre-commencement planning is in place and is available for view as required by stakeholders. Following site meetings with SEPA staff and agreement on consultation protocols reached in 2013, SEPA will nominate coupes which they feel are 'sensitive' during the standstill review of the draft plan, prior to its submission to Highlands and Islands Conservancy. The workplans for these coupes will be annotated with a consultation request and during site planning, operations staff will contact SEPA staff and accommodate any specific operational requirements agreed for that coupe.

NHFD will contact SEPA prior to commencing engineering works in, or in the vicinity of, inland surface waters to determine the level of authorisation required. Site specific mitigation for engineering works is not a matter for this plan, however Forestry Civil Engineering will adhere to all planning protocols that apply at the time of construction.

However as a minimum, no land shall be cultivated within 2 metres of any surface water or wetland or 5 metres of any spring that supplies water for human consumption, to encourage settlement of silt as the drainage waters flow over the open ground into watercourses.

Surface water drains will not discharge directly into the water environment and, where applicable, NHFD seek to address existing drains of this type to avoid siltation problems during and after forestry operations.

Where opportunities exist to deliver environmental improvement by the alteration or removal of inappropriately designed or redundant structures, for example, the upgrading of a culvert to allow fish passage or removal of a redundant weir, this will be undertaken by the Environment team. They will carry out consultation with the relevant stakeholders and will register the operation on the SEPA website. Opportunities for morphological and ecological improvements

may also be considered. For example measures could include the re-meandering of artificially straightened watercourses. It is often the case that opportunities for wetland and peatland habitat restoration are only revealed after felling, when landform is clear and hydrology can be accurately assessed. Therefore site level proposals of this nature are agreed at work plan stage with the Open Habitat Ecologist and the FD Environment team.

Forestry has a significant role in mitigating the effects of climate change. Building resilience against extreme weather events underpins all our proposals but is particularly relevant in relation to protecting overhead powerline networks, public roads infrastructure and water courses. Previous cultivation and drainage operations across the National Forest Estate are inappropriate for current climate predictions and this will be addressed by the adoption of less intensive techniques in future.

Arisings from felling and thinning operations (lop and top) are not considered as waste in terms of this plan, because the material will be incorporated in the brash mat to aid machine traction and flotation thus protecting fragile soils. Additionally material will be retained on site to achieve deadwood objectives; UKFS requires (as an element of sustainable forest management) an average of 20m³ of deadwood per ha of forest/woodland. As a result, on bigger harvesting sites areas of fallen and/or standing deadwood might be designated. These areas are not classified as 'felled to recycle' and their location is determined at the site planning stage and recorded in workplan document. Other branches and material left after harvesting contribute to the functional ecology of the woodland and are an important feature of nutrient recycling that will increase biodiversity and may assist future productive woodland establishment.

The central Sutherland LMP doesn't contain proposals of extensive felling to recycle. Where felling to recycle of non-native species occurs, the arisings have subsequent use, including protecting vulnerable native tree regeneration from grazing mammals and preventing the long term loss of site fertility and/or soil carbon. Such management approach might be adopted on sites marked for habitat improvements (e.g. PAWS restoration), where leaving the fallen timber on site contributes to the functional ecology of the woodland. Above management approach is recognised by SEPA's Guidance on Management of Forestry Waste: exclusion from waste control where the material ('non-hazardous agricultural or forestry material used in farming, forestry or for the production of energy') is going to be used on site (legitimate on-site use as per UKFS Environmental Guidelines - ecological improvement).

Where specific operations produce waste material not detailed above, the FD Environment or CRT staff will liaise directly with SEPA to establish the level of permission/licensing required on a site by site basis.

3.1.2.1 Flood risk

The Highland Council, in partnership with Argyll and Bute Council, Scottish Water, Forestry Commission Scotland, Scottish Environment Protection Agency, Cairngorms National Park

Authority and Loch Lomond and the Trossachs National Park Authority has published The Highland and Argyll Local Flood Risk Management Plan 2016 – 2022 (http://www.highland.gov.uk/downloads/file/16173/the_draft_highland_7_argyll_local_flood_risk_management_plan_lpd01). The aim of the Plan is to identify actions required to implement the Flood Risk Management (Scotland) Act 2009, and to reduce the damage and distress caused by flooding over the first planning cycle (2016-2022) and beyond. SEPA, local authorities and Scottish Water are predominantly responsible for flood risk management planning, but Forestry Commission Scotland and its land managing agency – Forest Enterprise Scotland, has been recognised in 2012 as one of responsible authorities, with potentially significant role in managing flooding.

The Highland and Argyll Local Flood Risk Management Plan has identified 40 areas where the risk of flooding is greatest – these areas are referred to as the Potentially Vulnerable Areas (PVA). There are no Potentially Vulnerable Areas within The Central Sutherland LMP area, as identified by the above mentioned Plan and on SEPA's Flood Maps (<http://map.sepa.org.uk/floodmap/map.htm>); however there are records of previous flooding incidents:

- Historic record of River Oykel flooding the Inveroykel & Rhelonie area in 1892;
- River Oykel bursting its banks at Linside in 2006;
- Culrain Burn flooding field adjacent to houses in 2002.

All operations on NFE will adhere to the Forest and Water Guidelines and the Water Environment (Controlled Activities)(Scotland) Regulations (CAR) and the General Binding Rules published by SEPA. Appropriate measures for each site will be agreed at the work plan level and put in place to prevent increase of runoff and/or woody debris from entering watercourses. The Central Sutherland LMP doesn't propose any operations that are likely to increase existing ground level, leading to increase in flood risk downstream.

The Central Sutherland Land Management Plan proposes creation of riparian woodland along watercourses, in order to protect and enhance aquatic environment. We are currently reviewing our approach to creating riparian woodland, considering planting native broadleaved species in higher densities along watercourses known to be at a higher risk of flooding. Such approach would allow for increased transpiration and for slowing the flow of water, therefore reducing the risk of flooding to the properties located downstream.

1.3 Climate

Understanding that climate is a key factor in determining the correct choice of species is fundamental to interpreting the prescriptions given in this plan. Although prescriptions for native woodland – both riparian and across the wider forest are based on the National

Vegetation Classification, it's important to acknowledge that limitations on accuracy are created because NVC based prescriptions in guideline documents don't account for climate variances. In all circumstances the local Operations Forester will make a judgement on any potential effect of climate on the recommended woodland type and if appropriate adjust it to reflect site conditions.

When choosing the correct productive species for a site the climate guidance contained in Pyatt, Ray and Fletcher's Ecological Site Classification (2001) will be an essential determining factor for species or woodland type choice. The ESC uses measures of warmth, wetness, continentality and windiness to make species recommendations based on national statistics (calculated from Met Office data for the recording period 1961 – 1991). Local site factors including soil and vegetation are then combined with the national figures.

The detailed species proposals for restocking are made on a coupe by coupe basis, following a site visit by Planning, Environment and Operations staff, who use site assessment, climate data, soil nutrient regime and soil moisture regime datasets. Unfortunately due to only partial coverage of detailed soils maps, SNR and SMR cannot be visualised as a map for this plan.

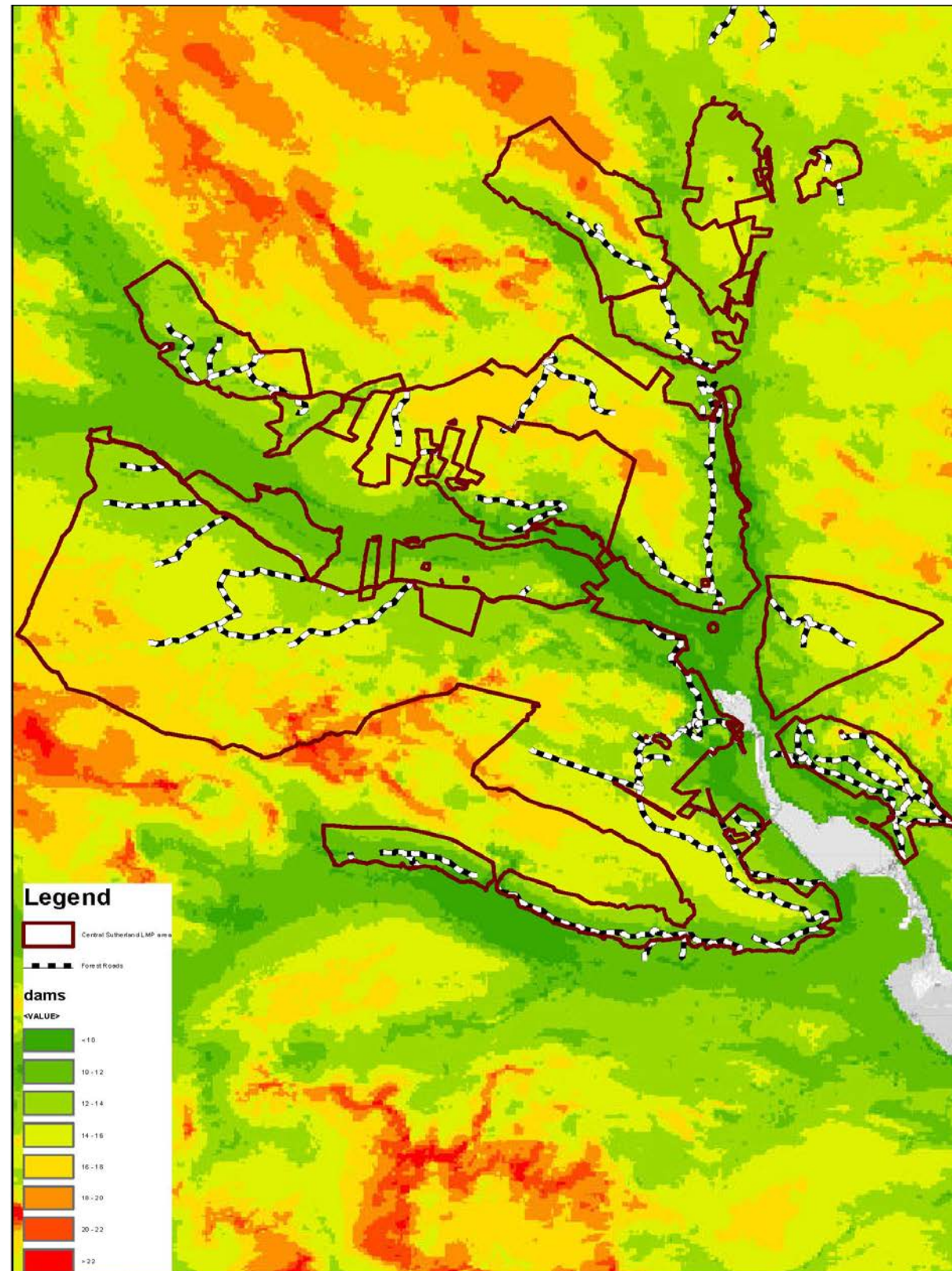
Windiness is assessed using the Detailed Aspect Method of Scoring (DAMS) developed by Quine and White (1993, 1994) which analysed tatter flag data to produce models that would predict the speed and frequency of strong winds.

The climate for this plan area in common with much of the northern Highlands is predominantly 'cool-moist' moving to 'cool-wet' higher up the hill. There are very localised areas where the climate is 'warm-moist' due to shelter. As a result the forests in this plan area benefit from a potential growing season and local climate suitable for commercial forestry and the establishment of a good variety of native woodland types.

DAMS scores of between 10 – 16 dominate the LMP area, with quite significant differences across the forest blocks (e.g. in Achany forest the DAMS scores vary between 10 and 20)

The areas with high DAMS scores (18 – 22) are restricted to southern fringes Inveroykel & Rhelonie, higher elevations in Achany, and northern part of Raemore Wood. Lower DAMS score areas are located mainly in Strathcarron and on lower slopes along the Kyle of Sutherland River Shin, with DAMS scores falling below 10 in few places.

The map below shows the DAMS scores across the FDP area.



DAMS across the LMP Area

3.2 Biodiversity and Heritage Features

3.2.1 Designated Sites

Sites designated for conservation reasons within this plan area are as follows:

- | | |
|---|--------|
| • Caithness and Sutherland Peatlands | SPA |
| • Caithness and Sutherland Peatlands | SAC |
| • Caithness and Sutherland Peatlands | RAMSAR |
| • Strath Carnaig and Strath Fleet Moors | SPA |
| • Strath Carnaig and Strath Fleet Moors | SSSI |
| • River Oykel | SAC |
| • Kyle of Sutherland Marshes | SSSI |
| • Grudie Peatlands | SSSI |

Forestry Commission Scotland manages these sites under a system of Designated Site Plans. These DSPs have been reviewed as part of this Land Management Plan and the operations associated with them carry the approval of Scottish Natural Heritage. All DSPs are appended as supporting documents to this plan and carry full details of the sites noted above. The designated habitats and species within Central Sutherland LMP area make it a very important area for biodiversity and future proposals will reflect the status.

Forests covered by Central Sutherland LMP area lie to just outside the Dornoch Firth National Scenic Area.

Plantations on Ancient Woodland Sites

The National Forest Estate (NFE) in Scotland currently accounts for 28,707 ha of Plantations on Ancient Woodland Sites (PAWS) and in response to the SFS mandate, Forestry Commission Scotland (FCS) has made commitments to restore over 85% of these, while continuing to protect, enhance and expand veterans and ancient woodland remnants.

The implications for management are that pre – operational surveys are geared to detecting relevant species and monitoring and operational data will subsequently be utilised to review the aims and objectives for each area of PAWS.

Using the PAWS restoration management flow chart in Choosing stand management methods for restoring planted ancient woodland sites Practice Guide (R. Harmer & R. Thompson, 2013) will help determine which method of restoration management is best suited to the site-specific conditions of the PAWS.

Wider benefits to biodiversity created by non-native species will also be balanced with the restoration potential to decide on future management approach.

The following distinct ancient woodland areas are recorded within the LMP area:

| Site Name | Site Area (Ha) | AW ID | OS Grid Ref |
|-------------|----------------|-------------|--------------------------|
| Rosehall | 194.0 | 4806 (436) | NC 479 023 |
| Ravens Rock | 4.9 | 4765 (395) | NC 495 006 |
| Linside | 5.19 | 4735 (238) | NC 522 000 |
| Linside | 55.75 | 4796 (426) | NH 534 992 |
| Ferry Wood | 5.13 | 4733 (236) | NC 577 066 |
| Ferry Wood | 4.56 | 4869 (8301) | NC 573 068 |
| Gruids Wood | 20.0 | 4713 (215) | NC 567 030 |
| Gruids Wood | 4.32 | 4734 (237) | NC 568 022 |
| Achany | 3.4 | 4793 (423) | NC 573 016 |
| Achany | 5.7 | 4868 (8300) | NC 572 013 |
| Achany | 101.5 | 4715 (217) | NH 572 997 |
| Carbisdale | 9.04 | 4802 (432) | NH 572 955 NH 571 951 |
| Carbisdale | 3.34 | 4801 (431) | NH 574 953 |
| Inveroykel | 4.91 | 4714 (216) | NC 463 008 |
| Inveroykel | 1.18 | 4736 (239) | NH 498 980 |
| Inveroykel | 2.69 | 4766 (396) | NH 485 965 |
| Inveroykel | 0.075 | 4769 (399) | NH 474 957 |
| Rhelonie | 2.19 | 4798 (428) | NH 524 985 |

The extent and locations of ancient woodland areas where restoration is proposed is detailed in **Map 2 – Key Features (Environment)**. All restoration to be undertaken on these sites will comply with current guidelines and best practice.

During the period of the Plan revision a detailed walkover survey was undertaken to determine the nature of each restoration site and at future planning meetings with operational staff this information will form the basis for decisions regarding appropriate

species of trees and shrubs to be used during restocking operations. For the results of the survey please see **Appendix VI – Planted Ancient Woodland Site Appraisal**.

3.2.2 Cultural Heritage

Central part of Sutherland is among the richest areas in the UK for archaeological features and the forests within the Central Sutherland LMP are extremely rich in both scheduled and unscheduled sites. In general, majority of the unscheduled monuments relate to previous settlement and agricultural land use e.g. brochs, farmsteads, hut circles, sheep fanks.

The Highland Historic Environment Record has been consulted during the preparation of this plan. Following *FES Historic Environment Planning Guidance*, this Land Management Plan describes and considers the historic environment relevant to the plan area.



Cairn Mor Broch, Birchfield. Photo A.Baranska, NHFD

Appendix V – Archaeology Record section of this plan includes details of all relevant scheduled monuments. Important historic environment features are surveyed, recorded, mapped and monitored to ensure and demonstrate Forestry Commission Scotland compliance with the UK Forestry Standard and UKWAS.

In general, all significant archaeological sites are protected and managed following *Forestry & Archaeology Guidelines* (FC 2011), the FCS policy document *Scotland's Woodlands and the Historic Environment* (FCS 2008) and the supporting *FES Historic Environment Planning Guidelines* (available from the FCS Archaeologist). Management coupes, access roads and fence lines are surveyed by Forest District staff prior to any work being undertaken in order to ensure that upstanding historic environment features can be marked and avoided. At restocking, work prescriptions remove relevant historic environment features from ground disturbing operations and replanting. Opportunities to enhance the setting of important sites are considered on a case-by-case basis (such as the views to and from a designated site).

Any recent archaeological surveys that have been undertaken on behalf of FCS have been incorporated into our spatial GIS database - and any new archaeological surveys required (in unimproved upland areas for example, or areas within which the archaeological record is unusually rich) will be undertaken to the standards laid out in *FES Historic Environment Planning Guidelines*. This will ensure that undiscovered historic environment features are mapped and recorded prior to forestry establishment and management operations - and will ensure the continued comprehensive protection of the known archaeological resource.

All scheduled monuments on the NFE in North Highland Forest District are inspected on a five yearly cycle with Historic Scotland, prior to preparation of a dedicated management plan for each site. These plans give detailed prescriptions for the management of each individual monument. There are no scheduled monuments within this FDP area.

It is common when planning forest operations to discover new sites of archaeological interest. All sites are subject to rigorous pre-operations planning and inspection and staff will refer to the guidance of Ritchie and Wordsworth (2010) when completing pre-operations surveys.

Advice will be sought from the FCS archaeologist on the significance of new sites and Highland Council and Historic Scotland consulted as appropriate.



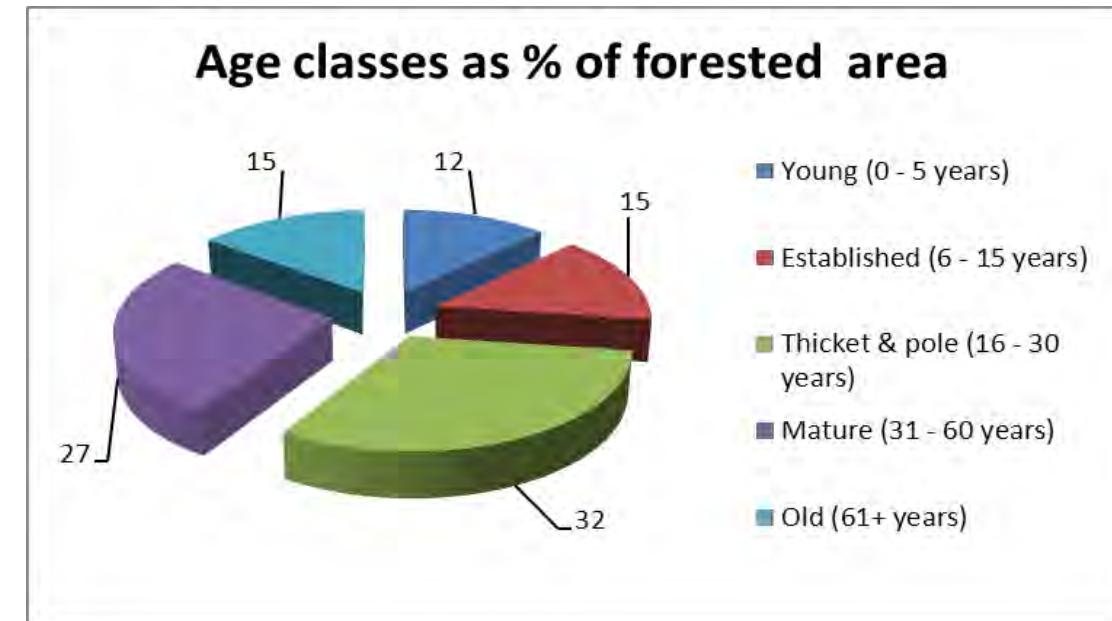
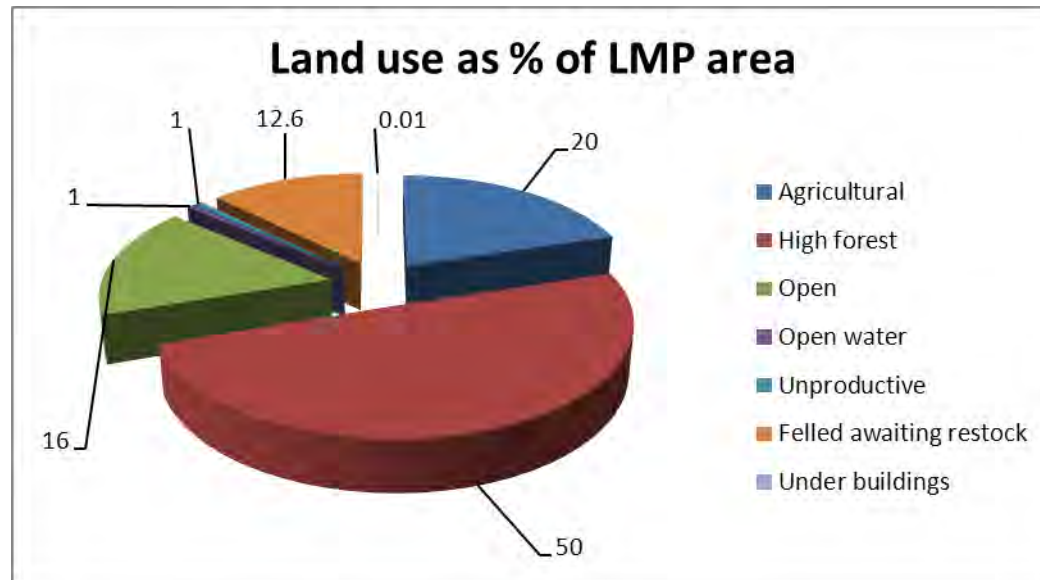
Ruined farmstead – Woodburn Farm. Photo A.Baranska (NHFD)

3.3 The existing forest

3.3.1 Age structure, species and yield class

Land use

The current land use structure within the Central Sutherland LMP shows that majority of the LMP area is dedicated to forestry (just below 63%) with other land uses taking just over 37% (like unproductive, open, agricultural, open water, built-up areas). In afforested category there are both existing crop (50%) in various age classes (please see the 'Age structure' paragraph below) and land currently awaiting restocking (just below 13%). North Highland FD adopted an average 5 year fallow, to minimise possible damage to newly planted trees caused by *Hylobius abietis*.



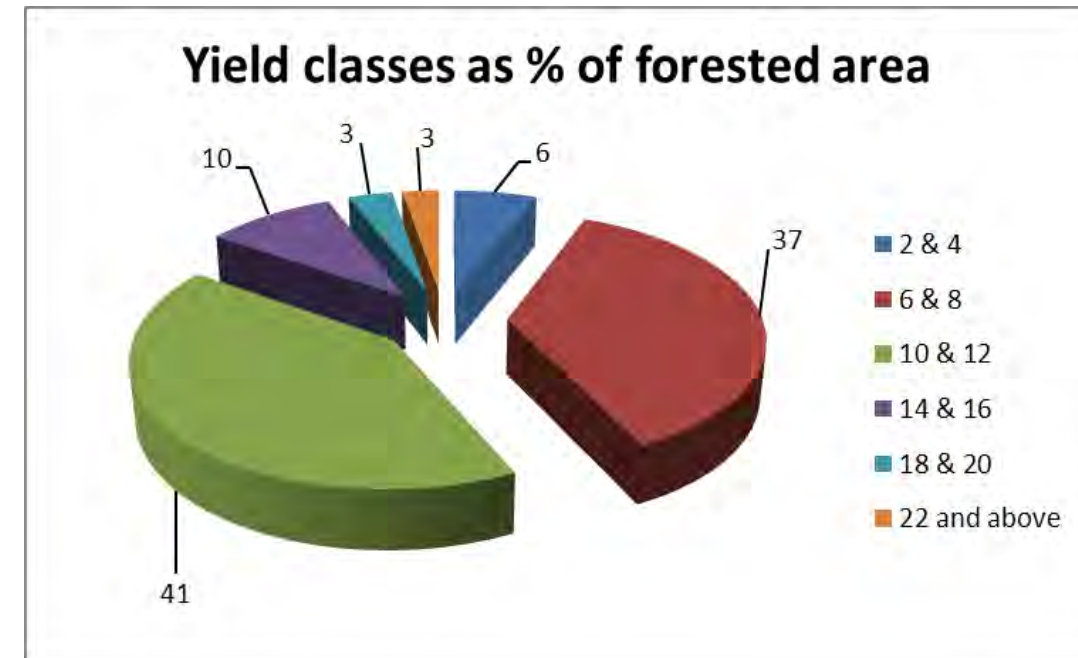
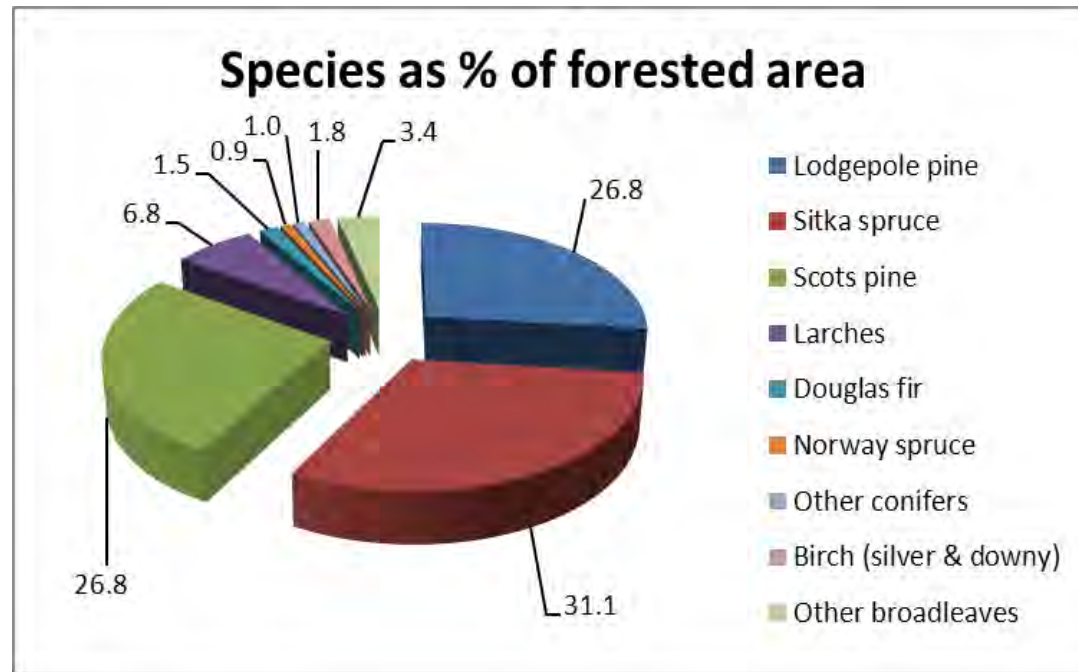
Age Structure

The age structure of the forests within the Central Sutherland LMP area is reasonably wide and diversified. The 'Thicket and pole' age class (16 - 30 years) has the largest representation – 32% - due to the large scale planting undertaken during the 90s; followed by 'mature' age class (31 – 60 years) with an almost 27% share, while the 'old' (61 years and over) covers 14.5% of the afforested LMP area. The 'young' age class (0 – 5 years) covers just above 12% of the afforested area; 'established' age class (6 – 15 years) has a share of just below 15%.

Larger scale felling coupes will occur in Inveroykel & Rhelonie (phase 1), where the size and shape of coupes is dictated by the windthrow (January 2015 and earlier); and due to extend of damage caused by DNB. The prescribing of permanent native woodland and riparian woodland zones will influence age class structure, as veteran trees will develop over coming decades.

Species

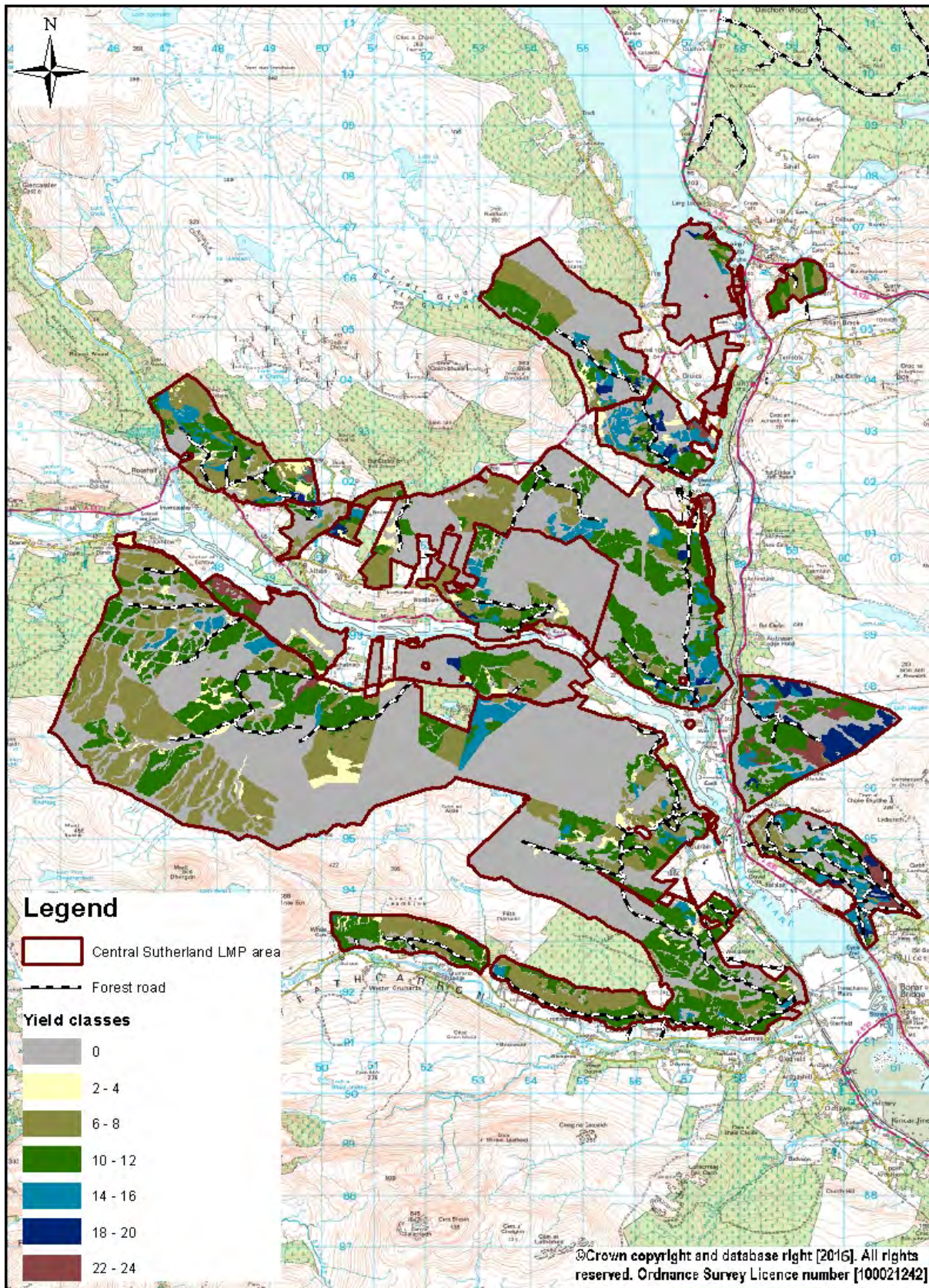
The chart below illustrates the species range across the LMP area. Sitka spruce (SS) predominates (over 31% of the forested area), with Scots pine (SP) and Lodgepole pine (LP) as the second most common species (both at just under 27%), due to soils types and past management objectives. LP and SS are planted both in pure species blocks and in mixture. Broadleaves cover just over 5% of the forested area. The broadleaf element is under-represented, and there is considerable scope for extension of this area, particularly in relation to the establishment of riparian native woodland intended to buffer watercourses and create habitat links, especially within PAWS restoration zone. There is also limited scope for productive broadleaves.



Other conifer species (10% of the forested area) have been planted to make the best possible use of soil types. There is scope for further species diversification within productive conifer crop.

Yield Class

Yield classes found in the Central Sutherland LMP area are typical for the species and site types encountered – 41% of the forest area lies in the 10 - 12 range, and just above 37% within 6 - 8 range. Yield classes in 14 – 16 range cover 10%; 2 – 4 about 6%. Higher yield classes (18 – 20 and 22 and above) cover about 3% each. It is anticipated that the yield class can be improved during the coming rotations by improved use of silviculture techniques and more appropriate site selection for species, however it is accepted that some areas will only be capable of producing biomass. The poorest sites have undergone analysis to assess suitability for productive forestry and this has informed the future habitat proposals.



Yield Class distribution across the LMP area.

3.3.2 Site Capability

The James Hutton Institute led the development of the Land Capability for Forestry (LCF) classification - a series of maps with accompanying handbooks at 1:250 000 scale, published in 1988. The classification and guidelines (Towers and Futton, 1989) allows planning to be undertaken based on an assessment of the factors influencing tree growth, notably climate, soils and topography. Silvicultural practices are also considered and developments in this area since 1989 mean that some local interpretation of the Classification is required. The Land Classification for Forestry is based on an assessment of the degree of limitation imposed by the following factors (in relation to productive forestry and not including establishment or enhancement of native woodlands):

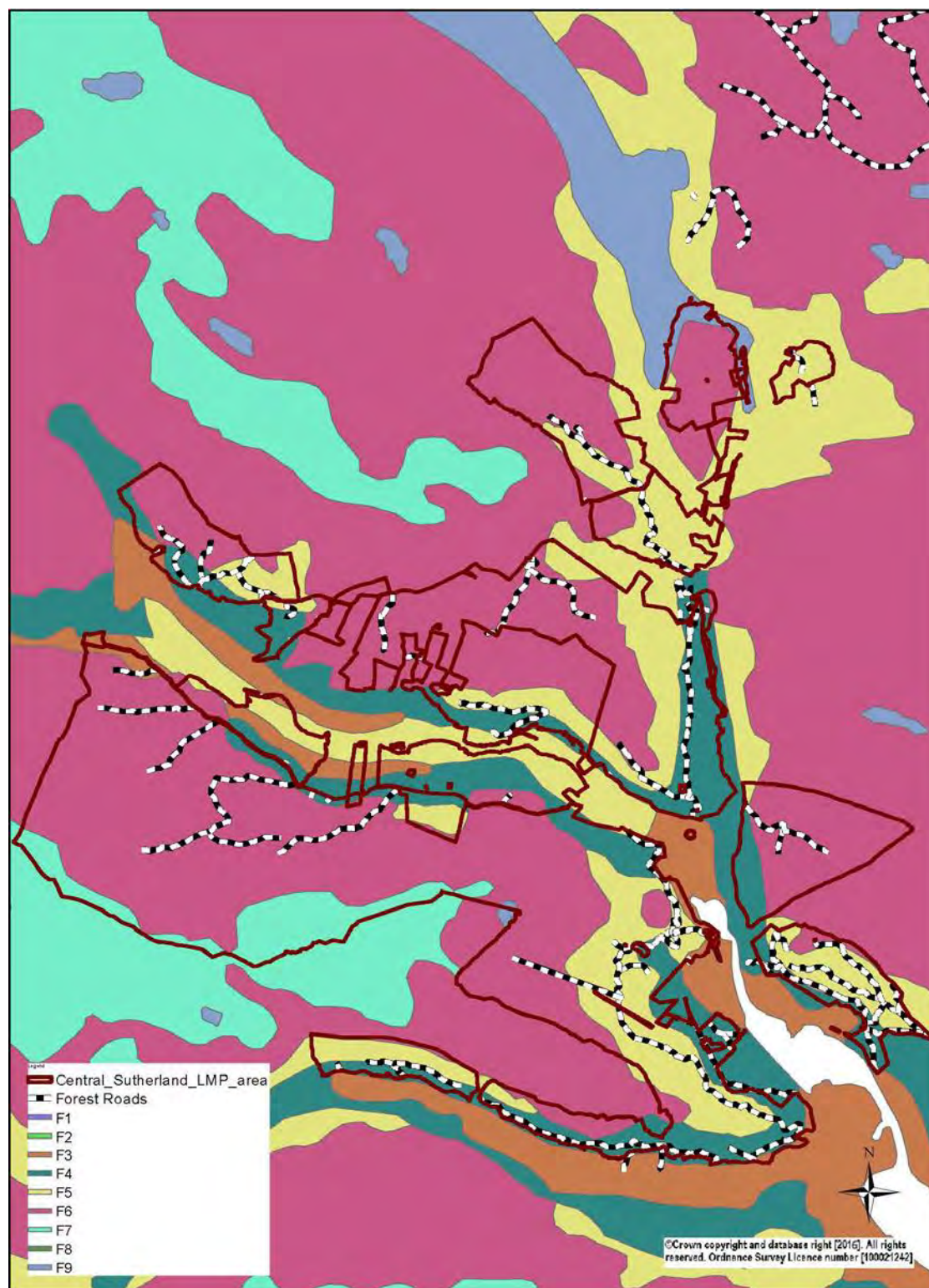
- Climate – accumulated temperature and exposure
- Windthrow – the risk of wind damage based on climate data
- Nutrients – assessing base geology and volume of organic/mineral soils
- Topography – giving an indication of the likely limitations on forest operations
- Draughtiness – assessing soil moisture and relating it to tree growth potential
- Wetness – water table movements and the effect on rooting depths
- Soil – relating to basic soil types and assessing effects of any modification

The Land Classification uses the descriptions in the table below:

| Class | Description |
|-------|--|
| F1 | Land with excellent flexibility for the growth and management of tree crops |
| F2 | Land with very good flexibility for the growth and management of tree crops |
| F3 | Land with good flexibility for the growth and management of tree crops |
| F4 | Land with moderate flexibility for the growth and management of tree crops |
| F5 | Land with limited flexibility for the growth and management of tree crops |
| F6 | Land with very limited flexibility for the growth and management of tree crops |
| F7 | Land unsuitable for the producing tree crops |

The Land Capability for Forestry guidance suggests varied flexibility for the growth and management of tree crops, from good (lower slopes along straths) to very limited (mainly higher elevations), therefore the choice of species for a significant part of the LMP area is restricted to those capable of growing in wet and exposed locations with poor soils. A map showing the distribution of classifications is shown below. The capability of the forests within this plan area to sustain productive forestry is dictated to a large extent by the local climate and equally significantly by geology, soils and the consequent

nutrient availability. Site capability is assessed on a coupe by coupe basis to ensure that the correct species and establishment techniques are matched to the site.



LCF across the LMP area.

3.3.3 Access

The forest road network generally provides relatively good access to the LMP Forests. Further roading is necessary to facilitate harvesting of coupes in few blocks (e.g. Rhelonie), particularly where long extraction distances would lead to unacceptable levels of soil damage and siltation. Please see table below for details.

Roads currently used for forest management access will need to be upgraded to Cat 1A to take timber traffic once harvesting starts. The following planned roads are currently noted:

| Location | Length (metres) | Grid reference |
|----------------------|-----------------|----------------|
| Inveroykel north | 145 | NH 4809 9961 |
| Badarach Wood | 160 | NH 5288 9796 |
| Rhelonie north | 200 | NH 5379 9801 |
| Rhelonie south | 1540 | NH 5342 9782 |
| Gruids turning point | 30 | NC 5663 0244 |
| Balinoe | 740 | NH 5722 9291 |

FD Operations staff will contact HC TECS prior to relevant coupes being harvested to ensure that operational restrictions are accommodated in the harvesting contract requirements and that wear and tear on relevant public roads can be minimised.

3.3.4 Low Impact Silvicultural Systems (LISS) Potential

With DAMS scores in moderate values and a reasonable proportion of mineral soils, there is scope for LISS within the Central Sutherland LMP area. There are number of reasons why LISS is a desirable management approach:

- Protection of water quality for freshwater pearl mussels and important fisheries;
- Prevention of siltation for important water extraction sites;
- General improvement of landscape on important tourist routes;
- Improvement of crop resilience and resistance to disease and climatic events.

The main LISS areas within Central Sutherland LMP area are Balblair, Gunns Wood, Carbisdale and Achany forests, with smaller areas in Rosehall and Gruids.

3.4 Landscape and Land Use

3.4.1 Landscape character

A site landscape appraisal has been undertaken by FD staff to assess the likely impact of future management and identify current constraints and opportunities to enhance the landscape. The FES Landscape Architect visited the site with NHFD planning staff on 16th of July 2015. Due to the dramatic landform of Sutherland, the views are both distant (Balblair viewed from Ardgay to Bonar Bridge A836 public road; Carbisdale viewed from Bonar Bridge to Lairg A836 public road, Inveroykel & Rhelonie viewed from A837 Invershin to Rosehall public road) and intimate and close (Achany from B864 Invershin to Lairg public road, Raemore, Gruids, Braemore, Ravens Rock and Rosehall viewed from A 839 Lairg to Rosehall public road).

Majority of the forested area covered by the Central Sutherland Land Management Plan area lie where four distinct landscape character zones. According to the Scottish Natural Heritage Caithness and Sutherland Landscape Character Assessment (C. Stanton, 1998) – those landscape characters are: kyles, firths and sea lochs, moorland slopes and hills, small farms and crofts, and strath.

The kyles, firths and sea lochs landscape character acts as a transition between open sea and straths and glens reaching far into the Sutherland interior. Therefore it is linked to straths character, and tends to penetrate into areas of moorland slopes and hills and has areas of small farms and crofts and woodland. The central space is occupied by water; the lower slopes are covered by a mix of settlement, agriculture or woodland, with the hills providing a background.



Carbisdale and Balblair from Bonar Bridge.
Photo A.Baranska, NHFD

This landscape character tends to be quite densely populated along the shores, with settlements concentrated mostly at bridging points, or where boats and ferries used to

cross. The long history of occupation results in location of many historic features within the landscape, particularly in prominent and defensive positions by the water edge, e.g. castles. Relics of Clearances, in form of ruined settlements, can be also found, conveying a sense of 'history' within the landscape. Patches of broadleaved and conifer woodland are common, with trees reaching considerable sizes due to relatively sheltered conditions and better soils. Existing conifer plantations will continue to undergo restructuring, involving operations such as clearfelling and restocking. Forestry works tend to be very visible upon the slopes; clearfelling has a short lived but significant impact on the landscape. This temporary negative impact of restructuring of conifer plantations can be limited by minimising soil disturbance, construction of hard surfaces for access and storage, and by reducing the size of tree debris left on site after operations. New woodland will fit best where it will link existing woodland areas, and on sites which appear appropriate for this type of land use.



Carbisdale Castle overlooking Kyle of Sutherland.
Photo: A. Baranska, NHFD

The moorland slopes and hills landscape character forms transition between the low lying sweeping moorland and the higher mountains. Sloping open moorland gradually rises to form broad hills, which possess massive proportions in the landscape and usually appear wider than their height. The sloping landform creates plateaux, shelves and basins - these areas tend to be poorly drained and sometimes contain patches of peat, lochs or *dubh lochans*. A surface of bare rock is sometimes exposed and visible on hill tops and glen sides. The extend of visibility tends to be varied; overall impression is however of openness and offers possibility of

unrestricted movement. Settlements and farms are usually concentrated along the straths - at the edge of this landscape character. The interior at large remains uninhabited, typically inaccessible to vehicles and grazed by deer. Fragments of broadleaf woodland survived at inaccessible locations, like remote straths and rocky crags. Conifer plantations, planted in majority of cases from the 50ties onwards, tend to be located close to access routes; upon the foot slopes to utilise free drainage. Both broadleaf and conifer woodlands are under deer grazing pressure, resulting in little natural regeneration appearing on the ground.



The moorland slopes and hills landscape merging into kyles and firths character. Rhelonie viewed from southern end of Achany forest. Photo A.Baranska, NHFD

Mature conifer plantations are being restructured to minimise their possible negative impact on landscape; the improvement mainly happening by re-designing the plantation boundaries and making them more sympathetic to the landform, but also by minimising disturbance to underlying soil and drainage, and conditions on site. The huge scale of the landscape allows for big coupes, which are a necessity in current windblow and tree health situation across the LMP area. Woodland expansion should be preferably achieved by utilising natural regeneration, but given the often exposed and marginal soils, combined with big deer pressure, often limits the options to planting. The visual impact of new planting might be reduced by designing woodlands to make them appear to sit within the landform. The composition of forest edge – with diverse species – is key to improving the overall landscape.

The strath landscape character creates a degree of spatial enclosure, depending on height and steepness of its slopes in relation to the width of the strath floor. Various land uses can be found within this landscape character, including settlement, agriculture, sporting and forestry. Broadleaved woodland is connected to the river, while conifer plantations tend to be located on the slopes. Many of the plantations are and continue to undergo restructuring, involving clearfelling. The landscape impact of such operations can be limited by minimising soil and vegetation disturbance and by keeping drainage to the minimum. Natural regeneration is considered to be more successful in creating woodland which is integrated

with the landscape. However new planting and restocking has the advantage of increasing the woodland area relatively quickly, attention must be paid to how the planting proposal relates to space and visual balance within the strath, with particular focus on area, shape, and forest and/or woodland edges.



The strath landscape character - Braelangwell viewed from minor public road
Photo A.Baranska, NHFD

The small farms and crofts landscape character occurs along the coast and straths. It represents a traditional form of crofting and farming and it is dominated by the occupation and activity of people – mainly agriculture: from small crofts to open small farms and moorland. This landscape character can vary depending on utilising specific local resources, but has a number of common elements, such as houses, outbuildings, field patterns with fences or walls, access roads, powerlines, clumps of trees and small woodlands. There's no conifer plantations within the Central Sutherland LMP within this particular landscape character, but there are some adjacent to it. Given the Scottish Government's pledge to increase area of woodland, underpinned by the grant system, it is possible that new woodlands will be created within this landscape character. Such proposals should relate directly to the landscape pattern and scale of enclosure. It is important to consider possible cumulative effect of new woodland areas, its potential to divide and isolate space and impact on the sense of identity of a place and its community.



The small crofts and farms landscape character with the conifer plantation at its northern edge. Strathcarron. Photo A.Baranska, NHFD

3.4.2 Visibility

The landscape sensitivity varies across the LMP area, offering both distant and close up, intimate views of the forest blocks. Majority of the forested area is located within popular tourist area and along busy tourist routes to the west and north, and in relative proximity to big population centres of Lairg and Bonar Bridge. People traveling along A836, A839 and A837 can enjoy both close and distant views of several forest blocks within the Central Sutherland LMP area.



Linside, Achany and Invershin Forests from minor public road (Altass). Photo: A. Baranska, NHFD

The winter storms in recent years (latest one in January 2016) caused extensive damage in all forest blocks covered by Central Sutherland LMP. The unsightly damaged crop is visible to the members of the public traveling through the LMP area. Effort will be made to remove the windblown trees within the 1st phase of the Plan (2017 – 2021).



Gruids from A839, traveling from Laig towards Rosehall. Photo: A. Baranska, NHFD



Extensive area of windblow on the northern edge of Inveroykel Forest. Photo: A. Baranska, NHFD

3.4.3 Neighbouring land use

The following land uses are noted across the landscape adjacent to the Central Sutherland LMP area:

- Productive forestry;
- Conservation;
- Tourism including outdoor pursuits, fieldsports and angling;
- Livestock agriculture
- Renewable energy developments, including wind farms.

3.5 Social factors

3.5.1 Recreation and access

Recreation across the Plan area has a high profile. Each of the blocks covered by the Central Sutherland LMP has a distinctive character, with significant differences in visitor numbers. Currently the main visitor hotspots within the Plan area are: Balblair Wood (with its extensive network of cycle trails), Rosehall, Ferrycroft and Achany (area close to former Falls of Shin Visitor Centre). All forest blocks are used daily by local residents, mainly for dog walking, but also for walking, jogging, cycling and horse riding, with the highest visitor numbers noted in blocks located close to big population centres (e.g. Ferry Wood and Guns Wood, close to Lairg).



Interpretation panel. Ord Hill, Courtesy of CRT, NHFD

Historically Falls of Shin Visitor Centre was attracting high visitor numbers, being a popular stop for coaches servicing daily trips for passengers of cruise ships docking in Invergordon. As a result, forest paths in Achany were very popular, but following the closure of Falls of Shin Visitor Centre (caused by a catastrophic fire), the visitor numbers had dropped.

Kyle of Sutherland Development Trust is currently working towards opening new tourist facilities on the very spot of Falls of Shin Visitor Centre; therefore it is very likely that Achany forest paths will once again attract high visitor numbers. Similarly, very popular Ravens Rock forest trails experienced reduction in number of visitors, following the extensive damage caused to the paths and trees by a storm in January 2015. The extent of the damage (windthrow and a landslide on the slope of the gorge) forced closure of the circular route, and

although the facility was re-opened as soon as the necessary works were completed, the visitor numbers are currently lower than those recorded before the catastrophic storm.



Damage to the recreational infrastructure caused by a storm in January 2015.
Ravens Rock. Photo: A. Baranska, NHFD

The forests within the LMP area are regularly used by recreation staff to deliver events and programmes of work with local groups and visitors.

The National Forest Estate is seeking to provide an appropriate backdrop for the outdoor activities, but also provides access facilities in the form of car parks, interpretation boards and forest trails of varying grades. The forest road network provides excellent opportunity for longer walks, cycling and horse riding. Formal facilities in this LMP area are as follows:

- Achany walks and car park;
- Balblair cycle trails and car park;
- Ferry Wood and Ord Hill walks and car park;
- Ravens Rock walks and car park.

The Highland Council is reviewing core path network in Sutherland. The core path network aims to satisfy the basic need of local people and visitors for general access and recreation. It is designed to provide links to the wider path network throughout the Highland Council area. The network comprises a mixture of existing paths and new ones, located close to where people live. That range from tracks worn into natural ground (desire lines) to paths constructed to a high specification. The core paths cater for all types of users – walkers, cyclist, horse rider, and people with disabilities and are a key part of outdoor access provision. NHFD takes an active part in the HC's core path review. Please see **Map 4 – Analysis and Concept** for a currently approved core paths within the Central Sutherland LMP forest blocks.

3.5.2 Community

The LMP areas falls within the North West and Central Sutherland Ward of the Highland Council Region and is represented by the following Community Councils (CCs):

- Ardgay & District CC
- Creich CC
- Lairg CC

NHFD included the community councils in the consultation process and the replies, where received, are recorded in **Appendix III – Consultation record external**.

In addition, NHFD works with local interest groups to help to develop projects aiming at benefitting local communities (Rosehall and District Activity Group are soon to manage Rosehall recreational facilities; Kyle of Sutherland Development Trust working towards providing tourist facilities on site of Falls of Shin Visitor Centre, damaged by fire in 2013).

3.6 Statutory requirements and key external policies

This Land Management Plan has been drafted to ensure that planning and operation functions will comply with the complex raft of legislation and policies that protect and enhance the Scottish Environment. **Appendixes I and II** contain further information on many of the guiding documents.

4.0 Analysis and Concept

4.1 Analysis of Opportunities

The Central Sutherland Land Management Plan has been produced in accordance with the UK Forestry Standard and the UK Woodland Assurance Scheme (UKWAS) guidelines.

The analysis and concept table in the following section is a culmination of the analysis of the key features identified in the previous sections and highlighted on the Key Features Maps (**Maps 2 & 3**). The analysis of the constraints and opportunities will focus on delivering the North Highland District Strategic Plan key commitments aiming at the publicly owned National Forest Estate to be:

- Healthy
- Productive
- Treasured
- Cared for
- Accessible
- Good value

The analysis and concept table identifies the relevant opportunities and constraints that are likely to be encountered during the implementation period of this plan and in the longer term. The key areas of this plan will be:

- To manage the productive areas of the forest to produce high quality timber and to manage more marginally productive areas to produce biomass at an economically viable scale and quantity.
- To maximise the diversity of tree species where climate and soils allow.
- Safeguard and improve designated species and habitats by restoring and/or enhancing PAWS, and establishing native and riparian woodlands. Where soil and climate allow, plant them in commercial densities to act as a productive forest comprising native species of broadleaf and conifer.
- Improve the environmental quality of the local water bodies by establishing a network of native broadleaves and open space in and around riparian areas through forest restructuring, planting and natural regeneration, thereby protecting and enhancing the conservation potential of the designated sites.

- To enhance habitats to make them suitable for freshwater pearl mussel, salmonids, otter, black grouse, breeding waders, and other species and allow them to flourish.

4.2 Concept Development

The design concept forms the broad spatial framework for the forest that will guide the detailed design (**see Map 4 Analysis and Concept**).

The overall aim of the plan is to create a forest that meets the priorities set out in the district strategic plan and addresses the local issues identified in the plan brief.

On full implementation of the plan, around 47% of the land will be managed for commercial timber production, ranging from biomass and local firewood production to providing sawlog material for processors through long term contracts; 0.1% - productive broadleaves; just above 8% - native woodland, almost 9% - riparian woodland; just above 6% will be managed under Low Impact Silvicultural Systems (LISS) and 0.6% - Natural Reserve. Remaining area (about 29%) - open ground, including existing open peatland habitats, open water, ground open for archaeology and agricultural land (common grazing).



Balblair Wood and Kyle of Sutherland. Photo A.Baranska, NHFD

Restoring key areas to native woodland and natural reserve from conifer plantation and enhancing the condition of existing open and riparian habitats will improve the forest's ability to adapt to climate change and provide suitable habitat for important protected animal species.

The plan proposes woodland removal on very exposed sites with specified soil types and, as this is associated with internal re-design of the woodland to meet environmental criteria, it does not fall within the scope of woodland removal policy guidance (Forestry Commission Scotland, 2009).

It is neither the intention nor the purpose of this plan to visualise detailed prescriptions of species boundaries or internal open space. This is in line with CSM6 (February 2005) which states:

"In certain circumstances (e.g. poor soil map coverage, archaeological sites, where access to the forest is difficult) it is impractical to draw up detailed restock proposals with exact boundaries. In such circumstances, indicative restocking proposals may be produced subject to agreement between FC/FE. Detailed proposals would be finalised at the coupe planning stage"

The rationale for habitat type is given in **Section 6.4 – Management Prescription Types**. Species will be matched to site following detailed soil survey in each compartment, as land form is revealed after clearfell. North Highland FD believes this to be best silvicultural practice and the most suitable way to achieve sustainability in future rotations.

Future habitat management is therefore logically proposed and mapped using a zoning method that indicates where each zone will be located.

The extended (generally up to five years) fallow periods that are required prior to restocking, to allow pine weevil populations to abate, have the negative effect of compounding nutrient deficit because nutrient released from decaying leaf litter will largely have been flushed from site by year five. It is anticipated that post planting applications of fertiliser will be required on the upper margins of the forest and remedial applications may be required in some crops in line with industry best practice (Taylor, 1991), however appropriate choice of silvicultural mixtures and well-timed heather control will be preferred to fertiliser.

Felling will generally exceed restocking within any five year period due to the practice of fallow and the inclusion of peatland restoration and higher levels of internal open space through restructuring. Improved site to species selection will maintain productivity in future

rotations. The planning system adopted by NHFD to ensure that silviculturally appropriate species are planted is as follows:

Coupe planning visit takes place when felling has reached 75% of area to identify any felling boundary issues, discuss landform, climate and soils and identify suitable species for the next rotation. This meeting is attended by staff from Planning, Operations, Environment, Deer Management and Stewardship and is called the '75% Meeting'. Outcomes are recorded in the coupe workplan.



Three years prior to restocking the Programme Manager chairs a site objectives meeting with the Planning Manager, Planning Forester, Environment Manager and FM Forester and uses the workplan to create appropriate planting stock orders for the coupe and this order is entered into the FD Business Plan by the FM Forester.



Once the restocking operation has taken place the Operations Forester passes the coupe restock details to the FD GIS Technician who then updates the Sub Compartment Database. The GIS Technician then informs the Design Planning Forester of completion.



The FD Design Planning forester then undertakes a site visit to confirm that the restock operation complies with the Land Management Plan objectives and design prior to review of the plan.

4.3 Analysis and Concept Table

| Factor | Opportunity | Constraint | Concept Development |
|--------------------|---|--|---|
| Climate and soils | Identification of soils capable of supporting productive crops will allow improved silviculture in the next rotation. Stratification of sites based on growing potential will allow biomass crops to be targeted to more marginal sites and higher silvicultural inputs to be concentrated on areas of higher potential. | The less fertile organic soils, adjacency to the designated and undesignated active and recovering peatland habitats, and the exposed nature of some parts of Central Sutherland LMP area will limit the choice of suitable species for the establishment of productive woodland. | Use site soil and climate conditions at coupe level to indicate future management prescription and species at a scale which is silviculturally appropriate. Use the Ecological Site Classification Support System to assist in correct species choice/management prescriptions. Continue to introduce site improving species such as Birch as an element of productive conifer sites. |
| Pests and Diseases | Areas with significant wind damage and those infected by Dothistroma Needle Blight (DNB) will be targeted for removal early in the Plan. An increase in species diversity will improve the ability of the forest to withstand attack from pathogens now spreading toward or across the north of Scotland. | The current spread of Dothistroma Needle Blight (DNB), the spread of Chalara (Ash Dieback) to the central Highlands and the continued identification of Phytophthora all continue to constrain species choice for planting and affect felling programmes. Lodgepole pine is an important productive species across the area and is particularly vulnerable to current pathogens. | Prioritise felling of the most significant areas of windblow and DNB affected crops. The FD will continue to play a leading role in the development and application of best practice in relation to DNB and will undertake monitoring of tree health routinely in line with FCS policy. In addition local staff will continue to be updated through training events and local communications meetings. |
| Forest structure | The successful establishment of current restock sites will allow continued improvement of age structure diversity. The development of native and riparian woodland on appropriate sites will add to age class diversity. | The restructuring programme is a long term objective so changes in age structure will inevitably only happen over a period in excess of 50 – 100 years. The windblow suffered in recent years has compromised the forest structure for the current rotation. | Accept the need to fell some areas prematurely in order to establish more sympathetic felling order (against prevailing wind) and more wind firm coupes in next rotation. Use watercourses, roads, existing and designed open ground as natural coupe boundaries, allowing for development of wind resistant edge trees and as a consequence more resilient coupes. Extend the rotation of coupes where climate and soils allow, to increase age class structure, while improving timber quality. Ensure areas of natural reserve are correctly identified to increase age diversity. |
| Hydrology | Remove riparian conifer and slow down run-off by restoring a mosaic of riparian woodland/open space and adopting low impact ground preparation techniques. Adopt current silvicultural best practice using nursing mixtures where possible to reduce reliance on fertilisers and ensure fertiliser applications in other areas follow best practice. Avoid intensive drainage regimes on the organic soils. Opportunity to significantly enhance riparian habitat to the benefit of freshwater pearl mussels, salmon and trout. | Forestry is one factor that could contribute to an increase in phosphorous levels and siltation, in addition to the effects of natural processes. Inappropriate cultivation of organic soils could cause deterioration in hydrology that will lead to oxidation of peat, with consequent carbon and methane release. | Follow best practice, adopt riparian woodland buffer zone widths of no less than 30metres from each bank for more significant watercourses and avoid unnecessary fertiliser applications. Promote silvicultural nurse mixtures. Plant riparian native woodland where regen is unlikely and dedicate this as minimal intervention at an appropriate stage. Restore peatland habitat on sites where such restoration is likely to be successful, will ensure positive carbon balance and will benefit the hydrology of the area. |

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| Timber recovery | <p>The opportunity to increase timber quality – with particular emphasis on conifers more productive sites – can increase productivity and income.</p> <p>Where current non-native species are compromising biodiversity aims (e.g. PAWS), remove the crops as early as possible.</p> | <p>Extensive areas of winblown and/or DNB affected crops with quickly deteriorating timber. Stability of crops that miss their thinning windows could be compromised and the marginal economics of thinning could mean that budget constraints affect programmes.</p> | <p>Prioritise higher value windblown coupes while deciding of the timing of felling. Ensure thinning interventions are undertaken on time and that best silvicultural practice is a high business plan priority.</p> |
| Biodiversity | <p>Opportunity to increase species diversity by introducing native broadleaf species – particularly riparian woodland providing dappled shade - as future seed source. Provide better linkage with neighbouring designated sites.</p> <p>Protect the designated species and enhance the riparian habitat capable of improving the aquatic environment for fresh water pearl mussels, salmon and trout.</p> <p>Restore/enhance PAWS areas as necessary.</p> | <p>Control of deer populations will be key to the establishment of sensitive broadleaf species and maintaining of deer fences will be required.</p> <p>Riparian native woodland establishment could have locally negative effects on feature species if done inappropriately (e.g. water vole and otter).</p> <p>Timing of removal of non-native crops from PAWS sites needs to be correct, to ensure preservation of native remnants without unnecessarily compromising income by early harvesting of immature crops.</p> | <p>Targeted deer culls and the maintenance of external deer fencing will be employed to assist in establishing sensitive species and native or riparian woodland. Deer fencing will be monitored and will be removed where appropriate. We will work closely with neighbours and stakeholders to ensure best practice is adopted and fencelines are planned and managed at a landscape scale appropriate to deer management.</p> <p>Appropriate low impact establishment techniques will be used to establish riparian woodland. Pre ops surveys by environment staff and FES ecologists will inform precise siting of native woodland planting.</p> <p>Peatland restoration on deep peat sites adjacent to designated peatland sites, undesignated active bog and recovering peatland will improve the bog hydrology and will lead to improved habitat linkage and condition for bog land flora and fauna.</p> <p>PAWS sites will be monitored to assess their conditions and inform future management decisions.</p> <p>Forest and Water Guidance will be adhered to and every effort will be made to ensure that forest operations don't have negative impact on watercourses.</p> |
| Open habitats | <p>To include open space in native woodland and productive woodland to increase forest structure diversity.</p> <p>To improve the quality of blanket bog habitats where they are encountered.</p> | <p>Open habitats may be impacted on by regeneration.</p> <p>Organic soils may be damaged by inappropriate establishment operations that affect hydrology.</p> | <p>Use buffer zones and transition habitat to reduce the risk of unwanted regeneration. Avoid silviculturally inappropriate restocking practices.</p> <p>Consult with stakeholders and maintain designated site plans to ensure that all operations are appropriate to designated species and habitats.</p> |

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| Native woodland | <p>Opportunity to restore/enhance PAWS areas.</p> <p>Opportunity to increase area of native woodland and species diversity in riparian zones.</p> | <p>PAWS restoration might be un-achievable due to native woodland remnants (both native trees and native ground flora) being unable to recover after extended period of suppression by non-native species.</p> <p>Planting opportunity will be partially limited due to extent of open ground priority habitats and unsuitable planting ground.</p> <p>Significant deer populations may cause difficulties during the establishment phase.</p> | <p>Survey PAWS areas to accurately assess their condition and inform future management decisions.</p> <p>Continue to follow best practice deer management.</p> <p>Adhere to deadwood policy.</p> <p>Create native woodland in line with current best practice, ensuring species appropriate to site are used and that structure will benefit designated species.</p> |
| Designated Habitats and Species | <p>Sustain and enhance the quality of habitat to encourage species and sites noted in this plan.</p> <p>Opportunity to demonstrate exemplar management of a diverse range of habitats.</p> | <p>Competing priorities could lead to an imbalance in a habitat favourable for all species.</p> <p>Rise in predator populations may compromise conservation efforts.</p> <p>Forest pathogens affecting important tree species such as larch, juniper, ash and scots pine may threaten the habitats of key species.</p> <p>Large scale clearfell may compromise species habitat.</p> | <p>Develop internal structure to allow greater age class diversity in future rotations, providing increased habitat diversity. Increase native habitat connectivity to benefit species diversity. Ensure that appropriate survey and monitoring is undertaken. Monitor regen on open ground sites.</p> <p>Monitor forest health and continue to contribute to research and the development of disease management best practice.</p> |
| Historic features / archaeology | <p>Opportunity to integrate historical features into the open/native woodland/riparian woodland habitat network.</p> <p>Opportunity to establish new heritage management practices such as grazing and burning where permission from Historic Scotland now exists.</p> | <p>Improvements are likely to be achieved over the longer term as the forest is restructured.</p> | <p>Consider historical features when designing open habitat network and planning restock operations. Refer new finds to the FCS archaeologist. Ensure that all sites are surveyed and results fed into the workplan.</p> <p>Ensure that all scheduled monuments have a SAM plan and that the work suggested is delivered.</p> |
| Recreation and Access | <p>Opportunity for formal and low key access. Good infrastructure and facilities for tourists and local users.</p> <p>Improve visual diversity and landscape quality.</p> <p>Opportunity to enhance the landscape around existing RoW and Core Path network.</p> <p>Opportunity to create a wider access network with minimal investment using existing forest roads.</p> | <p>Funding and resources will inevitably create a constraint to further development of facilities. Lack of longer trails and marketing budget may constrain user numbers.</p> <p>Forest operations can create conflict with forest users where sites are closed for Health and Safety reasons.</p> <p>Many access points – formal and informal – exist across this extensive LMP area and some may not be fit for purpose.</p> <p>Antisocial behaviour – motorbike use, litter, dog disturbance and unauthorised trail building will compromise conservation objectives and disturb other forest users.</p> | <p>Build on established links with local providers to encourage use of the sites.</p> <p>Continue to improve existing facilities as resources allow.</p> <p>Continue to improve path corridors by appropriate 'visitor zoning' operations.</p> <p>Work with the Highland Council Access Officer, Police Scotland, Community Councils and local residents/landowners to explore potential access linkage, limit anti-social use and encourage access by all.</p> |

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| Landscape | <p>Through well designed coupe shapes and use of a greater diversity of species, the landscape impact of the forest could be significantly improved.</p> <p>The increased areas of native and riparian woodlands will lead to a more organic transition from neighbouring land use to high forest.</p> | <p>Deer pressure may limit the successful establishment of the native and riparian woodland (more palatable species).</p> <p>Extent of winblow and forest health issues may mean coupe shapes are re-designed to recover deteriorating timber rather than improve landscape.</p> <p>Crops on very sensitive soils may be left after harvesting if operations become uneconomic, creating unsightly blocks.</p> | <p>Effective deer control, by a variety of techniques, will be adopted to allow the establishment of sensitive species and native/riparian woodlands beyond browsing height and will then be reviewed at the end of the plan period.</p> <p>A pragmatic approach to coupe shapes will be taken if winblow or disease dictates early felling.</p> <p>Accurate stratification of crops before marketing will allow harvesting to achieve full clearance of sites.</p> |
|-----------|--|--|---|

The analysis and concepts can be viewed spatially in **Map 4** of this plan and the perspective visualisations are provided.

5.0 Summary of proposals

5.1 Forest management

The Central Sutherland Land Management Plan has been produced in accordance with the UK Woodland Assurance Scheme (UKWAS) guidelines and the UK Forestry Standard. The overall aim of the plan is to maintain productive capacity, with species matched to appropriate sites, whilst protecting designated species and sites, restoring peatland habitat and create/expand native woodland and riparian habitat. Water quality management is acknowledged as one of the main LMP objectives.

Section 6.2 – Coupe Summary details areas to be restocked, new planting areas and the forecast of timber volumes and areas to be clearfelled in the first 2 plan phases. This information can be viewed spatially on **Map 5 – Management coupes**, **Map 6 – Future habitats**, **Map 7 – Planned operations (Felling and road construction)**, **Map 7 – planned operation (Restocking)** and **Map 8 – New planting**.

5.1.1 Clear felling

Parts of Central Sutherland LMP area (e.g. Inveroykel and Rhelonie) has been site of some significant clearfelling, beyond the restructuring objectives set by previous Forest Design Plans (FDPs), primarily due to wind damage and forest health issues (*Dothistroma Needle Blight*). The forests within the LMP area are producing timber of varying quality, from biomass and woodfuel, to good quality softwood. There is scope for producing hardwood - the proposed significant increase in area planted with broadleaves will provide mostly environmental benefits, as they will be planted in lower densities and maintained as native and/or riparian woodland, with some potential for producing fire wood, but there are areas where productive broadleaves can be successfully established and maintained, providing good quality hardwood. The majority of clearfell over the next ten years will be driven by an attempt to maximise timber recovery on sites affected by wind damage (January 2015 and 2016) and DNB, and by restructuring. Timber production from the plan area will consist of a wide variety of timber grades from Lodgepole pine crops, suitable for wood fuel and specific export markets to green sawlogs from Sitka spruce, Douglas fir, Larch and Scots pine. Maximising production will be balanced with the need to protect the soils and hydrology on sensitive sites. Clearfell will be undertaken using harvester – forwarder systems on a standing sales basis. Due to damage caused by both windblow and DNB, some of the crops on very wet sites might not be recovered, leading to creation of deadwood habitats zones, extend of which is difficult to predict prior to the commence of harvesting operations.

5.1.2. Thinning

Forest health issues (DNB) and a need to absorb significant extra volume following windblow events in 2006, 2015 and January 2016 had an impact on the thinning programme across the District. The need to prioritise recovery of valuable timber means that some of the thinning might get delayed or even

abandoned. Opportunities to thin crop in some blocks covered by the Central Sutherland LMP are limited by soil conditions and exposure. However there are areas where thinning might and should be undertaken and it is one of objectives of this plan to identify the most productive areas and to use available resources to maximise the silvicultural potential of every productive coupe. In such areas intermediate (selective) thinning will be undertaken, at a rate that generally does not exceed marginal thinning intensity. Heavier thinning might be carried out where other objectives are to be delivered (e.g. conservation of habitats or species, visitor zoning etc.)

5.1.3 LISS

Low impact silvicultural systems (LISS), also referred to as continuous cover forestry (CCF) will be used in more sheltered locations with relatively good soils (main areas managed by CCF are located in Achany, Carbisdale and Balblair, with less significant areas in some of the other forest blocks covered by Central Sutherland LMP), where such management approach is the best from the point of view of silviculture, and where it benefits landscape and local tourist business.



Area managed under LISS and, on the hill, Natural Reserve - Carbisdale. Photo: A. Baranska, NHFD

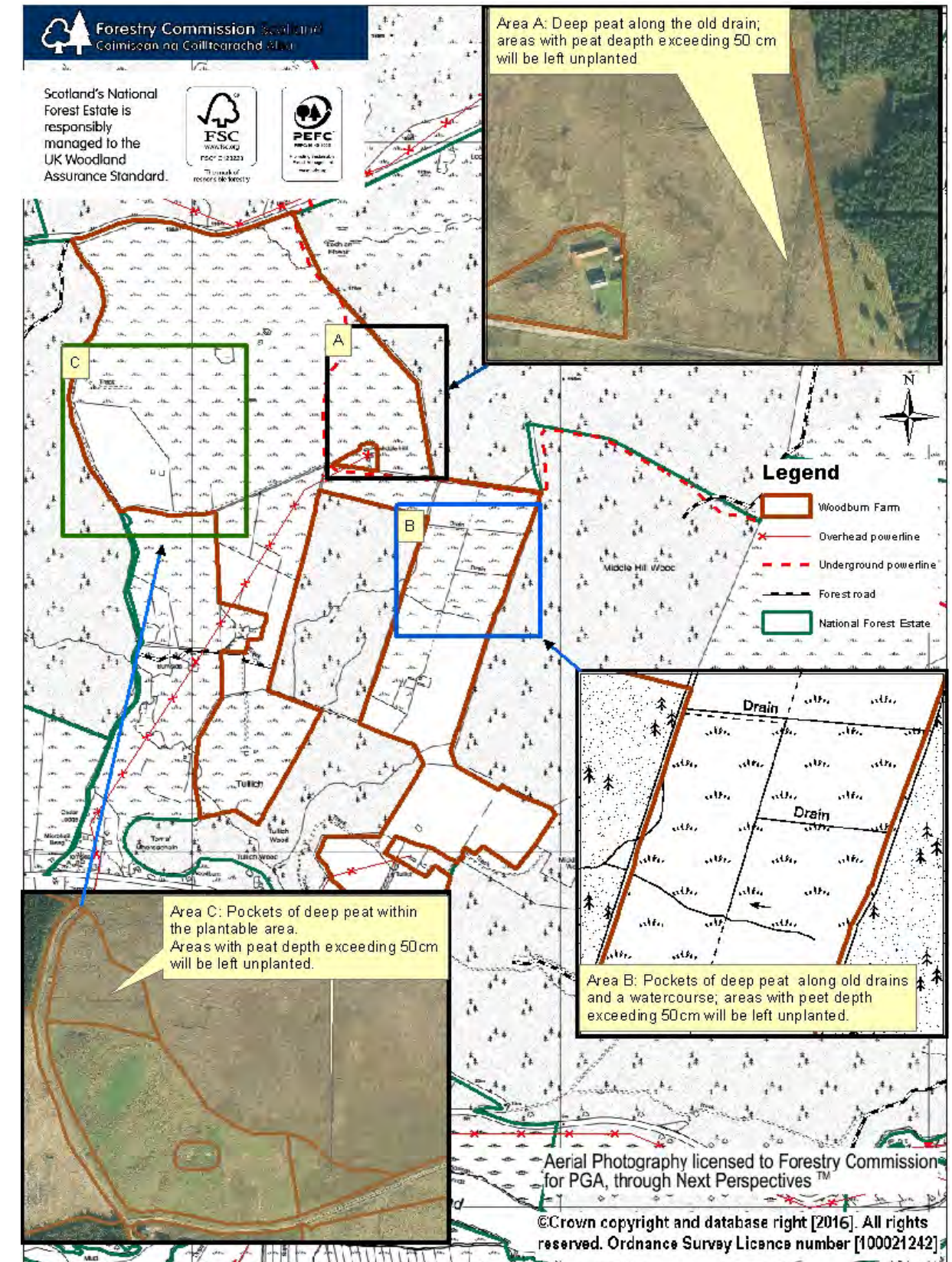
5.1.4 New planting

Across the LMP area planting of native broadleaf species will be carried out along watercourses, to create riparian woodland and improve aquatic environment. This kind of planting will be undertaken adhering to Forest and Water Guidelines (2011), within the footprint of existing forest (where conifers were planted right to the banks of watercourses and subsequently felled). Groups of native broadleaves might be planted on previously open ground (where previous rotation crop was kept away from the watercourses), to introduce a site-appropriate seed source and, in a long perspective, establish riparian woodland. Timing will depend on restocking of adjacent coupes and/or available funds.

New acquisition – Woodburn Farm, according to the Highland Forest and Woodland Strategy (2006), lies within categories A and B (category A being suitable for all types of woodland (taking into consideration local circumstances); category B suitable for mixed woodland mosaic with retention of substantial open space element within relevant landscape character).

Management proposal for Woodburn Farm has been developed taking into account local factors and the recommendations of Woodland Expansion Advisory Group (WEAG). WEAG classifies grazing land (entire area of the farm purchased by NFE) as having significant potential for creation of quality and high value woodland. By planting productive, native and riparian woodland on parts of Woodburn Farm, the District will contribute to Scottish Government’s woodland creation targets (WEAG’s Recommendation 1), create an opportunity for wood/timber production (Recommendation 2), help to reduce conflicts with other land uses by planting only on suitable land (in local context – not on highly sought after good grazing) (Recommendations 3 & 11), sequester carbon (Recommendation 16) and will help to make better use of existing woodland by consolidating very complex boundary, creating opportunity for improve harvesting access and timber haulage (Recommendation 18).

Woodburn Farm has been assessed as suitable for both commercial plantation and native/riparian woodland, and will be planted accordingly, using conifer species on more fertile ground and native tree and shrub species on areas identified as suitable for native and/or riparian woodland. Areas of deep peat (where peat depth exceeds 50cm) will be surveyed and will remain unplanted, as per requirements of UK Forestry Standard (2011) and Forestry Commission guidance: Forests and peatland habitats (2000) and Forestry on peatland habitats – supplementary guidance (2014). Wet areas identified during site investigation are of various origin – there is number of disused agricultural drains (some of which are marked as such on Ordnance Survey 1:10 000 map; other are visible on aerial photograph). Riparian woodland planting in wet areas will follow the Forest and Water Guidance, allowing for protective buffers as per Table 5.1. No land will be cultivated within 2m from surface water or wetland, 5m of any spring, wells or borehole; or land that is waterlogged. New planting proposal for Woodburn Farm forms part of Central Sutherland LMP. Details of the proposal can be found in section **6.2 Coupe summary**, and are shown on **Map 8 – New planting**.



Woodburn Farm –location of areas with pockets of deep peat.

5.2. Future habitats and species

With the exception of poorest, wettest soils, the forest across the LMP area are capable of growing timber crop of varied quality, from biomass to construction timber. Due to presence of deep peat, exposure (e.g. southern fringes of Inveroykel and Rhelonie), adjacency to designated peatland sites (e.g. Raemore Wood next to Grudie Peatlands SSSI) and economics of growing of low yield class crops on peat, the area available for producing softwood will be reduced, allowing creation of native and riparian woodland and an increase in open habitat area. Where it is possible, without compromising delivery of higher priorities, productive conifer will form the main component of the forest. **Section 6.5 – Productive Forestry Prescriptions** details the species that are suitable for each site type identified across the plan area and this will form the basis for discussion at each coupe 75% meeting.

During the plan period there will be a concerted effort to enhance and expand the native woodland component of the forest. In general, broadleaf woodland will be concentrated in both current and newly created riparian zones and in native woodland zones (PAWS), however broadleaved species will be encouraged throughout the entire forest, by retaining regeneration and establishing new seed sources by planting.

All native woodland establishment will be designed and delivered within the current FCS guidelines (Rodwell & Paterson, 1994). Planting operations will be aimed at encouraging a suitable National Vegetation Classification (NVC) woodland type appropriate to the soils and indicator vegetation encountered on site. This will be identified subsequent to harvesting operations and will generally adhere to FD fallow policy.

The restoration of riparian woodland will increase internal open space, fragmenting productive blocks, increasing forest edge habitat and allowing a windfirm network of permanent habitat corridors to develop. This in turn will allow for greater age class diversity in future rotations by providing a 'framework' within which reduced coupe sizes can be managed. Current climate change predictions under all climate change scenarios indicate that freshwater biota may become threatened by increases in summer temperatures and altered river flows resulting from increased precipitation. Salmonids in particular are susceptible to temperature changes (Broadmeadow, 2002). In addition soil erosion may be exacerbated by increased flood and drought cycles. The increase in dappled shade and soil stability provided by broadleaf riparian woodland will help to protect river ecosystems from the predicted temperature fluctuations predicted to result from climate change.

Deadwood is acknowledged as a very important element of the forest ecosystem, positively effecting biodiversity, carbon storage, soil nutrient cycling, energy flows, hydrological processes and natural regeneration. Retention of deadwood is an element of UKFS sustainable forest management – c. 20m³ per ha of forest/woodland. Managing deadwood in forests and woodlands – Practice Guide, Edinburgh 2012, by J. Humprey and S. Bailey, on proportions and types of deadwood will be adhered to and the position and type of deadwood required will be agreed pre-commencement on harvesting operations and reviewed at each coupe 75% meeting. Deadwood plays a vital role in the functioning of river

ecosystems. Dedicating riparian woodland as natural reserve will encourage a high proportion of deadwood over time, performing the following functions:

- Helping to retain water and sediments.
- Trapping and facilitating the breakdown of organic matter into food for aquatic invertebrates.
- Diversifying channels by creating pools, falls and riffles.
- Improving physical habitat structure for fish and invertebrates.

Some of the blocks within the Central Sutherland LMP area are very prominent in the landscape, and highly visible from popular tourist routes, therefore the extent and location of deadwood retentions should not compromise the overall appearance of the forests.

5.3 Restructuring

Forest restructuring efforts within the plan period will be driven by maximising timber recovery from crops affected by wind damage and/or Dothistroma Needle Blight. Although the extent of wind damage across the LMP area, and the scale of previous DNB and windblow related felling means that there is relatively small scope for designing felling coupes, the restock coupes are designed to be more wind firm by utilising watercourses, roads, landform, existing and created open spaces as natural boundaries. Given the scale of the task it needs to be accepted that this might not be achieved within the next rotation, but will allow for both structural diversity and will reduce the risk of catastrophic windblow in subsequent rotations.

5 year fallow period between felling and restocking is adopted across the District to allow a natural reduction in *Hylobius* populations. Population monitoring will be carried out prior to restocking in order to ascertain population levels as a means to reducing the use of insecticide applications during the establishment phase.



Clearfelled coupe in Green Breas; Inveroykel and Rhelonie visible in the background.

Photo: A. Baranska, NHFD

The preferred means of dealing with any adjacency issues will be through delayed felling, i.e. a coupe will not be felled until all surrounding crops are at least 2m tall. All the forest blocks within the Central Sutherland LMP suffered from wind damage and as a result extensive areas are proposed to be felled within next 10 years. As delaying felling of those windblown areas isn't an acceptable option (from the economic and landscape point of view), delaying of restocking is the only opportunity left to create any age diversity (although on a very limited scale). In addition, the anticipated rise in Hylobius population (it has happen in Benmore, following big scale DNB-related harvesting) is a big concern. Given the drive to minimise the use of pesticides on NFE, delaying of restock operations might be an only realistic option to establish next generation of trees. Where and when this happens, and outside tolerance limits agreed with FCS, an approval from FCS will be sought to deal with adjacency issues through delayed restocking. Please see section **6.3 – Tolerance Table** for more details.

The overall area of productive woodland will be reduced during the life of the plan through the removal of plantation from riparian and the poorest peatland sites. Restocking in productive areas will aim to maximise the productive capacity of the forest, the brief guidelines below will be followed to ensure adequate restocking:

- To obtain maximum benefits from restructuring, restocking areas will not be less than 3ha per individual shape or exceed 50ha unless forest health issues or windblow dictate otherwise.
- Restock coupes adjacent to the forest road network should be restocked to within a short distance of the forest road for at least 30% of the coupe frontage for future access.
- Non - productive broadleaf elements within productive coupes should be located where they will be of greatest benefit; in riparian zones, adjacent to open ground, other broadleaf woodland or around archaeological features to enhance the setting.
- Commercial restocking will not be undertaken on soil types 9e, 11c, 11d due to the intensive drainage regimes and high fertiliser inputs required.

Proposed restock areas can be viewed spatially on **Map 7 – CSM6 Planned operations (restocking)**. The LMP proposal seeks approval for restocking of areas felled prior to plan approval and those felled within the 1st 5 years from the date of approval. The District's applies a 5 year fallow period, which generally means that all coupes felled in 2nd phase of the plan are restocked outside the approved plan period. In order to secure approval for restocking of coupes felled in 2nd 5 year phase of the plan, if shorter fallow period is applied, proposed areas of 2nd phase restock are also shown on **Map 7 – CSM6 Planned Operations (restocking)**.

5.3.1 Peatland restoration

Central Sutherland LMP area contains areas of afforested deep peat, usually exposed and located at the outer fringes of forest blocks. Those areas tend to produce slow growing trees (mainly Lodgepole pine, but also Lodgepole/Sitka mix) of poor quality, often suffering from Dothistroma Needle Blight (DNB). Future management decisions regarding these areas are based on current UKFS requirements, The Scottish Government's Policy on Control of Woodland Removal, and the recently published FCS Practice Guide 'Deciding future management options for afforested deep peatland'.

Where deep peat coupes show poor tree growth and have the potential to be turned into net carbon sink, contribute significantly to biodiversity and hydrology interest of adjacent peatland sites, and there is a good chance of restoration being successful, we will undertake works to block drains and furrows and remove regenerating non-native species, so that blanket bog can be restored.

On less important deep peat sites, where we judge that the peat cannot be restored effectively (due to level of damage caused by previous rotation) and where we can't expect the rate of tree growth to be sufficient to maintain positive carbon balance if restocked with conifers at commercial density, we will aim to promote wet woodland, comprising natural regeneration of tree species present on adjacent sites and native species planted at low densities. This will eventually form a permanent ecotone between bog and productive woodland.

We are currently developing a decision support rational with Environmental Research Institute in Thurso to help us identify the most suitable sites for restoration of blanket bog and wet woodland. In addition we will fully support the work of the Flow Country Science Group in evaluating the efficacy of current mitigation measures on peatland species and hydrology so that future management reflects actual experience rather than models.

5.4 Management of open land

The management of open land is detailed in chapter **6.4 – Management Prescription Types** and is visualised in **Map 6 – Future Habitats**.

We recognise the valuable ecosystem services that are provided by open land and in particular active ombrotrophic mire systems such as blanket bog. The benefits include carbon and methane storage, water quality improvement, reduced flooding risks and increased biodiversity.

We will work with SNH to improve/maintain Kyle of Sutherland Marshes SSSI's condition. Previous management approach, combining mechanical cutting of rushes and rough grasses with grazing,

is to be replaced by controlled burning combined with mechanical cutting. The aim of such approach is to remove the build-up of dead grass litter in order to maintain the biodiversity of the fen meadow. Please see the **Designated site plans** in LMP's Support documents for details of the proposed management of Kyle of Sutherland Marshes SSSI.

Other open areas (including priority open habitats in Birchwood and archaeological features and their protective buffers) will be maintained, using grazing where appropriate, to prevent natural regeneration of trees.

Where suitable open habitat frames watercourses, we will plant native broadleaves adjacent to watercourses to improve aquatic habitat quality, as per section **6.4 – Management prescriptions**, avoiding sensitive species and habitats.



Birchwood – a mosaic of priority open habitats. Photo: A. Baranska, NHFD

5.5 Deer Management

Wild deer on the National Forest Estate (NFE) are managed in accordance with the Scottish Government's strategy "Scotland's Wild Deer a National Approach" and under the auspices of the Code of Practice on Deer Management. All proposals and operations are tested against the criteria contained in the Joint Agency Statement on Deer 2004.

The strategy and Code of Practice takes recognition of the fact that wild deer are an asset, and integral part of Scotland's biodiversity and provide healthy food and recreational opportunities. The

challenge of managing wild deer originates in a need to balance the environmental, economic and deer welfare objectives of the Scottish nation with the objectives of private landowners for forestry, agriculture, sporting and other forms of land use.

The principal legislation governing the management of deer in Scotland and hence on the NFE is the Deer (Scotland) Act 1996.

Forestry Commission Scotland's (FCS's) policy recognises that deer are capable of causing significant damage to forests and woodlands, mainly through browsing and bark stripping and can also adversely affect biodiversity through over-grazing of ground flora and the suppression of natural woodland regeneration. They are however a natural component of woodland ecosystems, they can provide recreational sporting opportunities and venison as a high quality food. The presence of deer can enhance the experience of visitors to the forest. It is therefore FCS deer policy to:

- Prevent adverse deer impact on commercial tree crops and the wider habitat. In doing so carry out deer culling in an exemplary and humane way and maintain an effective network of external deer fences where they are required;
- Work closely with relevant organisations and neighbours to make sure that there are integrated deer management plans which seek to recognise the interest of all parties and identify opportunities to reduce overall fencing by contributing towards 'strategic landscape scale fencing';
- Take opportunities to optimise income from and from sporting where this does not conflict with our primary objective of maintaining deer impacts at acceptable level;
- Produce venison in line with Quality Meat Scotland accreditation in the form of The Scottish Quality Wild Venison (SQWV) Assurance Scheme;
- Take all practical steps to slow down the expansion of non-native deer species into areas where they are not currently present

The deer population across the LMP area comprises roe (*Capreolus capreolus*), red (*Cervus elaphus*), and sika deer (*Cervus Nippon*). Sika deer is the predominant species in Central Sutherland area, and there are reports of Sika and Red deer interbreeding. This creates obvious challenges for FCS and our objectives in the area. This is compounded by the fact that over the coming years the restocking programme will be increasing along with a higher percentage of broadleaves being planted. The most recent survey estimates deer numbers within the Invershin and Balblair blocks to be 5 deer per 100 ha, while in other blocks covered by the Plan the deer density is slightly higher at 7 deer per 100 ha. This is close to the FCS's target density of 5 deer per 100 ha. Please see **Map 9 – Deer management** for details of deer species distribution and areas to be restocked within next 10 years. External boundary fences within Central Sutherland LMP area are deer-fences. Part of Central Sutherland LMP area falls within area covered by the Association of Deer Management Groups and is split between North Ross Deer Management Group

(DMG): Invroykel & Rhelonie, Strathcarron, Braelangwell, Carbisdale, and West Sutherland DMG: Rosehall, Raemore Wood, Gruids, Achany, Linside, Altass, Woodburn Farm, Ferrywood and Gunns Wood). Two forest blocks covered by Central Sutherland LMP (Invershin and Balblair) lie outside the area covered by the Association of Deer Management Groups. Forest blocks within the LMP area are currently affected by five FES Wildlife Management Units (WMUs) covered by individual Deer Management Plans divided into the following areas:

- Invershin and Balblair
- Strathkyle
- Inveroykel
- Rosehall
- Achany

The current WMUs structure is has been re-aligned to reflect the change to the District's Land Management structure.

Currently FES Deer Management Plans contain mainly cull data over a period of years and deer density information, usually noting the overriding objectives. Revision of this approach is underway and Deer Management Planning is moving towards integration with the Land Management Planning. This approach will become more evident in the coming years. As for now, the individual Deer Management Plans for each WMU are held at the North Highland Forest District Office and are available on request.

FCS records Deer Vehicle Collisions (DVC) in the Wildlife Management System, which is updated by a deer controller in given area, and the information is passed to SNH. The risk of DVCs is reduced on property boundaries through a combination of sensibly placed deer fencing and active deer culling. FCS uses SNH authorisation to achieve these culls as appropriate. These authorisations are as per the 1996 Deer (Scotland) Act, Part III, paragraph 18 point 2 with regard to night shooting, any Part II, paragraph 5 point 6 with regard to culling on unenclosed land. In addition to this, FCS uses the general licence for deer culling where required. Where necessary, FCS contributes to road safety groups or panels. This has involved a significant amount of work in the past.

Low grazing pressure will be tolerated, in particular around areas considered to 'buffer' the wider forest. These buffer areas may consist of either managed open space (deer 'lawn' areas) or planted woodland near existing forest edge where browsing damage will be accepted.

Development of a proportionate zone of browsed vegetation in these areas – either commercial density conifers or broadleaved species capable of coppice growth - also carries wider biodiversity benefits and is accepted as a consequence of efforts to manage deer populations without resorting to extensive fencing.

As the forest plan progresses the focus on deer management will change to ensure favourable conditions are present for the establishment of native broadleaves. It is believed that a density of 5

deer per 100ha or lower will be required for broadleaf establishment. Operational policies and procedures are held at the Forest District Office.

The deer management data is spatially represented on **Map 9 – Deer management**.



6.1 CSM6 Form

CSM 6 Appendix 1b

FOREST ENTERPRISE - Application for Forest Design Plan Approvals in Scotland

Forest Enterprise - Property

| | |
|---|--------------------------------|
| Forest District: | North Highland Forest District |
| Woodland or property name: | Central Sutherland Forests |
| Nearest town, village or locality: | Lairg |
| OS Grid reference: | NH 5431 9916 |
| Local Authority district/unitary Authority: | Highland Council |

Areas for approval

| | Conifer | Broadleaf |
|------------------------------------|---------|-----------|
| Clear felling | 1021.89 | 0.00 |
| Selective felling | 0.00 | 0.00 |
| Restocking | 1441.55 | 411.87 |
| New planting (complete appendix 4) | 14.90 | 15.78 |

1. I apply for Forest Design Plan approval*/~~amendment approval*~~ for the property described above and in the enclosed Land Management Plan.
2. * I apply for an opinion under the terms of the Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999 for afforestation*/~~deforestation*~~ roads*/ ~~quarries*~~ as detailed in my application.
3. I confirm that the initial scoping of the plan was carried out with FC staff on 14th of May 2015
4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.
5. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included.
6. I confirm that consultation and scoping has been carried out with all relevant stakeholders over the content of the of the design plan. Consideration of all of the issues raised by stakeholders has been included in the process of plan preparation and the outcome recorded on the attached consultation record. I confirm that we have informed all stakeholders about the extent to which we have been able to address their concerns and, where it has not been possible to fully address their concerns, we have reminded them of the opportunity to make further comment during the public consultation process.
7. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed T. Coode
Forest District Manager

Signed [Signature]
Conservator DOWN RISKY

District North Highland Forest District Conservancy Highland and Islands

Date 05.10.2016 Date of Approval 18/10/16

Date approval ends: 1.7/10/2026

*delete as appropriate

FOREST ENTERPRISE - Application for Approval of New Planting

1. Forest Enterprise – Property

| | |
|---|------------------|
| Forest District: | North Highland |
| Woodland or property name: | Woodburn Farm |
| Nearest town, village or locality: | Rosehall |
| OS Grid reference: | NC 5266 0074 |
| Local Authority district/unitary Authority: | Highland Council |

2. Proposed areas to nearest tenth of a hectare

| | |
|--------------|---------|
| New Planting | 30.7 Ha |
| Open Ground | 0.0 Ha |
| Total | 30.7 Ha |



3. Special areas and protected land

| Designation | Area Name or Number | Comments |
|-------------|---------------------|----------|
| None | | |


4. Proposal details of new planting

| Area Name or number | Gross Area (Ha) | P Year | Spp | Area (Ha) | Open Ground (Ha) | Field Identifier | Comments |
|---------------------|-----------------|--------|-----------------|-----------|------------------|--|-----------------------------|
| Woodburn Farm | 14.90 | 2017 | SP, SS, LP, NMB | 14.90 | 0.00 | NC/51825/01103 NC/52515/01030 NC/52697/00678 NC/52750/00103 NC/52168/00304 | Productive conifer woodland |
| | 7.61 | 2017 | MB, SP | 7.61 | 0.00 | NC/52697/00678 | Productive mixed woodland |
| | 4.54 | 2017 | NMB, SP | 4.54 | 0.00 | NC/52140/01381 | Native woodland |
| | 3.63 | 2017 | NMB | 3.63 | 0.00 | NC/52697/00678 NC/52750/00103 | Riparian woodland |

I apply for Authority to plant as above and as shown on the attached map – please see Map 8 – New planting, for details.

I undertake to obtain the necessary permissions from the appropriate statutory body before commencing work under any approval which is granted.

Signed: 
Forest District Manager

Signed: 
Conservator JOHN RUSBY

District: **North Highland**

Conservancy: **Highland & Islands**

Date: 15.06.2016

Approval Date 18/10/16

Date approval ends: 17/10/2026

6.2 Coupe Summary

| Coupe Number & Grid Reference for Restock Coupes | Area of Felling (Ha) | Predicted Volume (m3 OB) | Proposed Restock Year | Area to Restock Within Plan Period (gross) (ha) | Comments |
|--|----------------------|--------------------------|-----------------------|---|-------------------------------|
| Coupe 1 Restock - NC57430675 | (-) | (-) | 2021 | 6.02 | Native woodland |
| Coupe 2 Restock - NC5790624 | (-) | (-) | 2021 | 3.22 | Native woodland |
| Coupe 3 Restock - NC54670491 | (-) | (-) | 2018 | 33.06 | Productive conifer woodland |
| | | | 2018 | 6.45 | Riparian woodland |
| | | | (-) | 4.04 | Open |
| Coupe 4 Restock - NC55470425 | (-) | (-) | 2020 | 2.00 | Productive conifer woodland |
| Coupe 5 Restock - NC55820379 | (-) | (-) | 2020 | 8.18 | Productive conifer woodland |
| | | | 2020 | 0.31 | Riparian woodland |
| | | | (-) | 0.92 | Open |
| Coupe 6 Restock - NC56480353 | | | 2020 | 13.65 | Productive conifer woodland |
| | | | 2020 | 4.99 | Riparian woodland |
| | (-) | (-) | (-) | 0.26 | Open |
| Coupe 7 Restock - NC56250253 | (-) | | 2021 | 25.31 | Productive conifer woodland |
| | | | 2021 | 0.09 | Riparian woodland |
| Coupe 8 Restock - NC47300273 | (-) | (-) | 2017 | 8.44 | Productive broadleaf woodland |
| | | | 2017 | 2.93 | Riparian woodland |
| | | | 2017 | 5.91 | Native woodland |
| Coupe 9 Restock - NC48350217 | (-) | (-) | 2022 | 9.14 | Productive conifer woodland |
| Coupe 10 Restock - NC48630200 | (-) | (-) | 2022 | 5.12 | Productive conifer woodland |
| Coupe 11 Restock - NC49520112 | (-) | (-) | 2020 | 16.92 | Productive conifer woodland |
| | | | 2020 | 1.40 | Riparian woodland |
| | | | 2020 | 1.74 | Native woodland |
| | | | (-) | 0.65 | Open |
| Coupe 12 Restock - NC50300132 | (-) | (-) | 2017 | 3.85 | Native woodland |
| | | | 2017 | 0.13 | Riparian woodland |
| | | | (-) | 0.70 | Open |
| Coupe 13 Restock - NC51440143 | (-) | (-) | 2021 | 12.60 | Productive conifer woodland |
| | | | 2021 | 0.63 | Riparian woodland |
| Coupe 14 Restock - NC51670071 | (-) | (-) | 2020 | 19.65 | Productive conifer woodland |
| | | | 2020 | 4.00 | Riparian woodland |
| Coupe 15 Restock - NC52430072 | (-) | (-) | 2018 | 10.20 | Productive conifer woodland |
| | | | 2018 | 6.72 | Riparian woodland |
| Coupe 16 Restock - NC52390018 | (-) | (-) | 2020 | 6.67 | Productive conifer woodland |
| | | | 2020 | 8.10 | Riparian woodland |
| | | | (-) | 0.84 | Open |
| Coupe 17 Restock - NC53679978 | (-) | (-) | 2018 | 27.44 | Productive conifer woodland |
| | | | 2018 | 2.89 | Riparian woodland |
| Coupe 18 Restock - NC53820148 | (-) | (-) | 2018 | 19.30 | Productive conifer woodland |
| | | | (-) | 1.04 | Open |
| Coupe 19 Restock - NC54590237 | (-) | (-) | 2018 | 8.18 | Productive conifer woodland |
| | | | 2018 | 9.58 | Native woodland |
| | | | 2018 | 9.88 | Riparian woodland |
| | | | (-) | 8.71 | Open |
| Coupe 20 Restock - NC55420167 | (-) | (-) | 2018 | 24.97 | Productive conifer woodland |
| | | | 2018 | 16.68 | Riparian woodland |
| | | | 2018 | 6.93 | Native woodland |
| Coupe 21 Restock - NC56180190 | (-) | (-) | 2018 | 8.56 | Riparian woodland |
| Coupe 22 Restock - NH55439906 | (-) | (-) | 2019 | 13.80 | Productive conifer woodland |
| | | | 2019 | 5.08 | Riparian woodland |
| | | | 2019 | 7.09 | Native woodland |
| | | | (-) | 0.98 | Open |
| Coupe 23 Restock - NH56729926 | (-) | (-) | 2020 | 66.85 | Productive conifer woodland |
| | | | 2020 | 4.16 | Riparian woodland |
| | | | 2020 | 17.23 | Native woodland |
| Coupe 24 Restock - NH56949764 | (-) | (-) | 2020 | 3.36 | Productive conifer woodland |
| Coupe 25 Restock - NH47429814 | (-) | (-) | 2018 | 102.88 | Productive conifer woodland |
| | | | 2018 | 9.49 | Riparian woodland |
| Coupe 26 Restock - NH48329683 | (-) | (-) | 2018 | 34.37 | Productive conifer woodland |
| | | | 2018 | 11.22 | Riparian woodland |
| Coupe 27 Restock - NH49109653 | (-) | (-) | 2019 | 120.34 | Productive conifer woodland |
| | | | 2019 | 17.48 | Riparian woodland |
| | | | 2019 | 16.15 | Native woodland |
| | | | (-) | 4.83 | Open |
| Coupe 28 Restock - NH56199684 | (-) | (-) | 2021 | 14.96 | Productive conifer woodland |
| | | | 2021 | 4.13 | Riparian woodland |
| | | | 2021 | 1.84 | Native woodland |
| | | | (-) | 0.34 | Open |
| Coupe 29 Restock - NH54049523 | (-) | (-) | 2018 | 32.33 | Productive conifer woodland |
| | | | 2018 | 11.37 | Riparian woodland |
| | | | (-) | 2.72 | Open |
| Coupe 30 Restock - NH53749457 | (-) | (-) | 2018 | 58.36 | Productive conifer woodland |
| | | | 2018 | 7.16 | Riparian woodland |
| | | | (-) | 80.01 | Open |
| Coupe 31 Restock - NH55019398 | (-) | (-) | 2020 | 71.91 | Productive conifer woodland |
| | | | 2020 | 3.01 | Riparian woodland |
| | | | (-) | 20.41 | Open |
| Coupe 32 Restock - NH55909345 | (-) | (-) | 2020 | 60.21 | Productive conifer woodland |
| | | | 2020 | 7.30 | Native woodland |
| | | | (-) | 1.70 | Open |
| Coupe 33 Restock - NH56169419 | (-) | (-) | 2020 | 24.85 | Productive conifer woodland |
| | | | 2020 | 4.41 | Riparian woodland |
| Coupe 34 Restock - NH60139402 | (-) | (-) | 2020 | 7.51 | Productive conifer woodland |
| Coupe 35 Restock - NH51409294 | (-) | (-) | 2017 | 15.89 | Productive conifer woodland |
| | | | 2017 | 2.57 | Riparian woodland |
| Restock Coupes Summary | | | | 1119.15 | |

| Coupe Number & Grid Reference for Phase 1 (red) Coupes | Area of Felling (Ha) (gross) | Predicted Volume (m3 OB) | Proposed Restock Year | Area to Restock Within Plan Period (gross) (ha) | Comments |
|--|------------------------------|--------------------------|-----------------------------|---|---|
| Coupe 1 Felling - NC57960557 <i>Coupe 36 Restock</i> | 1.89 | 262.00 | 2025 (-) | 0.35 1.54 | Riparian woodland Open |
| Coupe 2 Felling - NC55330446 <i>Coupe 37 Restock</i> | 8.12 | 2072.00 | 2022 (-) | 7.54 0.59 | Productive conifer woodland Open |
| Coupe 3 Felling - NC655240355 <i>Coupe 38 Restock</i> | 5.38 | 1669.00 | 2025 (-) | 4.90 0.48 | Riparian woodland Open |
| Coupe 4 Felling - NC5590402 <i>Coupe 39 Restock</i> | 6.46 | 2690.00 | 2025 | 6.46 | Productive conifer woodland |
| Coupe 5 Felling - NC57200311 <i>Coupe 40 Restock</i> | 8.11 | 7708.00 | 2025 2025 | 5.97 2.14 | Riparian woodland Native woodland |
| Coupe 6 Felling - NC47790289 <i>Coupe 41 Restock</i> | 9.38 | 3792.00 | 2024 2024 | 8.33 1.05 | Productive conifer woodland Riparian woodland |
| Coupe 7 Felling - NC48850166 <i>Coupe 42 Restock</i> | 12.66 | 3590.00 | 2022 2022 2022 (-) | 4.18 6.08 1.57 0.83 | Productive conifer woodland Riparian woodland Native woodland Open |
| Coupe 8 Felling - NC50050123 <i>Coupe 43 Restock</i> | 7.41 | 1890.00 | 2025 | 7.41 | Productive conifer woodland |
| Coupe 9 Felling - NC50340159 <i>Coupe 44 Restock</i> | 3.08 | 1026.00 | 2023 2023 (-) | 1.95 0.72 0.41 | Native woodland Riparian woodland Open |
| Coupe 10 Felling - NC51060171 <i>Coupe 45 Restock</i> | 7.57 | 2708.00 | 2023 2023 (-) | 3.99 2.04 1.54 | Native woodland Riparian woodland Open |
| Coupe 11 Felling - NC50450109 <i>Coupe 46 Restock</i> | 26.63 | 7771.00 | 2023 2023 (-) | 23.13 1.90 1.60 | Productive conifer woodland Riparian woodland Open |
| Coupe 12 Felling - NC51060025 <i>Coupe 47 Restock</i> | 38.19 | 9105.00 | 2024 2024 (-) | 31.47 5.84 0.88 | Productive conifer woodland Native woodland Open |
| Coupe 13 Felling - NC51980001 <i>Coupe 48 Restock</i> | 5.02 | 1005.00 | 2022 2022 | 3.35 1.68 | Native woodland Riparian woodland |
| Coupe 14 Felling - NH52739947 <i>Coupe 49 Restock</i> | 13.48 | 5282.00 | 2022 2022 2022 (-) | 10.40 1.97 0.76 0.35 | Productive conifer woodland Native woodland Riparian woodland Open |
| Coupe 15 Felling - NH54089984 <i>Coupe 50 Restock</i> | 12.22 | 2440.00 | 2022 2022 2022 | 6.51 4.64 1.07 | Productive conifer woodland Riparian woodland Native woodland |
| Coupe 16 Felling - NC57360151 Coupe 51 Restock | 8.43 | | 2022 | 8.43 | Riparian woodland |
| Coupe 17 Felling - NH56159854 <i>Coupe 52 Restock</i> | 9.04 | 2359.00 | 2024 | 9.04 | Productive conifer woodland |
| Coupe 18 Felling - NH56619818 <i>Coupe 53 Restock</i> | 14.77 | 3829.00 | 2024 | 14.77 | Productive conifer woodland |
| Coupe 19 Felling - NH57519780 <i>Coupe 54 Restock</i> | 7.88 | 2677.00 | 2022 (-) | 5.37 2.51 | Native woodland Open |
| Coupe 20 Felling - NH55939821 <i>Coupe 55 Restock</i> | 15.56 | 4904.00 | 2025 2025 | 11.84 3.72 | Productive conifer woodland Riparian woodland |
| Coupe 21 Felling - NH49609781 <i>Coupe 56 Restock</i> | 76.72 | 23300.00 | 2023 2023 (-) | 55.99 20.10 0.63 | Productive conifer woodland Riparian woodland Open |
| Coupe 22 Felling - NH50289663 <i>Coupe 57 Restock</i> | 126.22 | 23852.00 | 2022 2022 | 106.50 19.72 | Productive conifer woodland Native woodland |
| Coupe 23 Felling - NH52499693 <i>Coupe 58 Restock</i> | 125.01 | 35387.00 | 2024 2024 (-) | 87.65 15.61 21.76 | Productive conifer woodland Riparian woodland Open |
| Coupe 24 Felling - NH53789842 <i>Coupe 59 Restock</i> | 98.16 | 25818.00 | 2022 2022 2022 (-) | 73.18 13.16 11.51 0.32 | Productive conifer woodland Native woodland Riparian woodland Open |
| Coupe 25 Felling - NH56189618 <i>Coupe 60 Restock</i> | 19.42 | 4279.00 | 2023 | 19.42 | Productive conifer woodland |
| Coupe 26 Felling - NH55619443 <i>Coupe 61 Restock</i> | 8.17 | 22777.00 | 2023 2023 | 6.22 1.95 | Productive conifer woodland Riparian woodland |
| Coupe 27 Felling - NH57579361 <i>Coupe 62 Restock</i> | 20.34 | 8083.00 | 2024 2024 2024 | 14.08 4.16 2.10 | Productive conifer woodland Riparian woodland Native woodland |
| Coupe 28 Felling - NH57899363 <i>Coupe 63 Restock</i> | 1.20 | Not forecastable | (-) | 1.20 | Open (powerline buffer) |
| Coupe 29 Felling - NH51479333 <i>Coupe 64 Restock</i> | 28.74 | 7822.00 | 2024 2024 (-) | 18.56 2.89 7.29 | Productive conifer woodland Riparian woodland Open |
| Coupe 30 Felling - NH52709273 <i>Coupe 65 Restock</i> | 20.15 | 4789.00 | 20.23 2023 (-) | 18.33 1.62 0.19 | Productive conifer woodland Riparian woodland Open |
| Coupe 31 Felling - NH57529156 <i>Coupe 66 Restock</i> | 30.95 | 5855.00 | 2023 2023 | 30.53 0.42 | Productive conifer woodland Native woodland |
| RED COUPES SUMMARY | 776.36 | 231275.00 | | 734.27 | |

| Coupe Number & Grid Reference for Phase 2 (orange) Coupes | Area of Felling (Ha) (gross) (Gross) | Predicted Volume (m3 OB) | Proposed Restock Year | Area to Restock Within Plan Period (gross) (ha) | Comments |
|---|--------------------------------------|--------------------------|-----------------------|---|---|
| Coupe 32 Felling - NC56090286 <i>Coupe 67 Restock</i> | 21.29 | 8737.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 33 Felling - NC56700257 <i>Coupe 68 Restock</i> | 13.37 | 3630.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 34 Felling - NC47050315 <i>Coupe 69 Restock</i> | 14.04 | 5188.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 35 Felling - NC47980216 <i>Coupe 70 Restock</i> | 16.17 | 5275.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 36 Felling - NC48360241 <i>Coupe 71 Restock</i> | 6.71 | 1244.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 37 Felling - NC49600226 <i>Coupe 72 Restock</i> | 21.91 | 6844.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 38 Felling - NC46770062 <i>Coupe 73 Felling</i> | 23.67 | 8524.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 39 Felling - NH48379973 <i>Coupe 74 Restock</i> | 48.30 | 13398.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 40 Felling - NH53739934 <i>Coupe 75 Restock</i> | 26.98 | 11859.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 41 Felling - NH54479924 <i>Coupe 76 Restock</i> | 7.25 | 1940.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 42 Felling - NH55599509 <i>Coupe 77 Restock</i> | 12.47 | 3691.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 43 Felling - NH50879322 <i>Coupe 78 Restock</i> | 22.50 | 8399.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 44 Felling - NH52419283 <i>Coupe 79 Restock</i> | 10.87 | 2406.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 45 Felling - NH54529185 <i>Coupe 80 Restock</i> | 20.30 | 3802.00 | | (-) | Fallow - to restock outwith plan period |
| Coupe 46 Felling - NH56209164 <i>Coupe 81 Restock</i> | 17.26 | 4300.00 | | (-) | Fallow - to restock outwith plan period |
| ORANGE COUPES SUMMARY | 245.53 | 89237.00 | | (-) | |
| FULL SUMMARY | 1021.89 | 320512.00 | | | |

| Block Name & Grid Reference for New Planting | Area of Felling (Ha) (gross) | Predicted Volume (m3 OB) | Proposed Planting Year | Area to Restock Within Plan Period (gross) (ha) | Comments |
|--|------------------------------|--------------------------|------------------------|---|-----------------------------|
| | (-) | (-) | 2017 | 14.90 | Productive conifer woodland |
| Woodburn Farm | | | 2017 | 7.61 | Productive mixed woodland |
| New Planting - NC 5191 0107 | | | 2017 | 4.54 | Native woodland |
| | | | 2017 | 3.63 | Riparian woodland |
| New Planting Summary | | | | 30.68 | |

6.3 Tolerance Table

| | Adjustment to felling coupe boundaries | Timing of restocking | Change to species | Wind throw or environmental response | Adjustment to road lines |
|---|---|--|--|---|--|
| FC Approval not normally required (record and notify FC) | <10% of coupe size | Up to 5 planting seasons after felling (allowing fallow periods for Hylobius). | Change within species group E.g. Scots pine to birch, Non-native conifers e.g Sitka spruce to Douglas fir, Non-native to native species (allowing for changes to facilitate Ancient Woodland policy). | Low sensitivity area The affected area where wind throw, disease or other environmental factors represents more than 60% of the crop, the area including standing trees within the affected area may be felled. | Low Sensitivity Area <ul style="list-style-type: none"> • Creation of turning points/ loading bays. • Deviation of less than 100m either side of the predicted centre line of the road/ track in low sensitivity areas. High Sensitivity Area Deviation less than 50m in either direction from the predicted centre of track |
| Approval by exchange of letters and map | 10-15% of coupe size | 5 years + | Change of coupe objective likely to be consistent with current policy (e.g. from productive to open, open to native species). | Low sensitivity area <ul style="list-style-type: none"> • As above to include up to 5ha of healthy crop beyond the affected area to a wind firm or reasonable edge. | Low Sensitivity Area Deviation of 100 - 150m metres either side of the predicted centre of road in areas of low sensitivity. |

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|--|--------------------|--|---|--|--|
| | | | | <ul style="list-style-type: none"> The affected area where wind throw or disease is less than 60% of the crop. <p>High Sensitivity Areas The affected area where wind throw or disease is more than 60% of the crop.</p> | <p>High Sensitivity Area Deviation of 50-100m in either direction from the predicted centre line of road or track</p> |
| Approval by formal plan amendment | >15% of coupe size | | Major change of objective likely to be contrary to policy, E.g. native to non-native species, open to non-native, | <p>Low sensitivity area Greater than 5 Ha of healthy crop required to reach a wind firm or reasonable edge beyond the affected area.</p> <p>High sensitivity area</p> <ul style="list-style-type: none"> The affected area where wind throw or disease is less than 60% of the crop. Felling of standing trees or healthy crop beyond the affected area. | Deviations exceeding the above. |

6.4 Management Prescription Types

The future habitat management for North Highland FD Land Management Plans is visualised on the plan maps as zones of proposed management prescriptions. These management prescription types are detailed in the table below and further detail is provided in **6.5 – Productive Forestry Prescriptions** and **6.6 – Native Woodland Prescriptions**.

| Management Prescription Type | Stocking Details at Initial Planting | Management Type Detail |
|---|--|---|
| Productive Conifer Woodland (See Section 6.5 for detailed species prescriptions) | 2500 – 3500 stems per hectare 70% area conifer species 20% area open space 10% area broadleaf species | Primarily comprising conifer species in a silvicultural mixture appropriate to site soils and climate. The aim of this management type is to produce softwood by clearfelling for sawlogs, small roundwood and biomass markets. The broadleaf element will generally be concentrated around archaeological and recreation sites, wet ground areas, boundaries with open ground and/or roads; however on sites with limited nutrition an increased broadleaf element will be considered for inclusion as part of the silvicultural mixture to maintain site fertility. Open ground will be incorporated around archaeological and recreation sites and on unplatable (for example rocky) ground throughout the coupe. Herbivores will be managed effectively and the sites will be monitored using the FCS Stocking Density Assessment protocol. |
| Productive Broadleaf Woodland (See Section 6.5 for detailed species prescriptions) | 3000 – 6000 stems per hectare 60% area broadleaf species 10% open space 30% native species (including conifers where appropriate) | Primarily comprising broadleaf species in a silvicultural mixture appropriate to site soils and climate. The aim of this management type is to produce hardwood by clearfelling for roundwood and biomass markets including local firewood sales. The conifer element (if applicable) will generally be concentrated where it will offer biodiversity gains (for example juniper close to powerline wayleaves) but on suitable sites will also form a productive element. This management type will be the preferred option for better soils capable of producing hardwood. Open ground will be incorporated around archaeological and recreation sites and on unplatable (for example rocky) ground throughout the coupe. Herbivores will be managed effectively (additional internal fencing will be considered) and the sites will be monitored using the FCS Stocking Density Assessment protocol. |
| Productive Mixed Woodland (See Section 6.5 for detailed species prescription) | 2700 – 5000 stems per hectare 80% of area trees (both broadleaf and conifer; % depending on site condition) 20% open space | This management type will be proposed where productive objective is more appropriate than habitat restoration or native woodland, and where strictly conifer or broadleaf prescription is unlikely to maximise the productive potential of the site. This management type will generally be used on moderate and poorer soils, with the aim to produce both softwood and hardwood, for roundwood and sawlogs where possible, but also biomass and local firewood market. Open ground will be incorporated around archaeological and recreation sites and on unplatable (for example rocky) ground throughout the coupe. Herbivores will be managed accordingly, and the sites will be monitored using the FCS Stocking Density Assessment protocol. |
| Native Woodland (See Section 6.6 for detailed species prescriptions) | Minimum 1600 stems per hectare 10% to 60% native broadleaves Up to 70% Scots pine (percentage depending on suitability of the ground) 20% open space or 80% area native broadleaves 20% open space | Where this management type is proposed native tree and shrub species will be established at lower density mosaics reflecting the appropriate NVC woodland type for the local soils and climate as detailed in Section 6.6 – Native Woodland Prescriptions. Primarily established with the aim of increasing biodiversity, enhancing recreation and education opportunities and potentially producing low quality timber on long rotations (EG for firewood markets) this woodland will be eventually create a woodland stand structure that contains a range of different age classes, both mature and veteran trees with deadwood and some permanent open areas at the margins and internally. A light level of grazing by herbivores sufficient to allow regeneration of a characteristic range of trees and shrubs and a well-developed field layer will be tolerated although deer control will be sufficient to allow establishment of transplants and eventually progression to regeneration. Although non-native tree species will generally be absent, they will be tolerated at low levels (less than 15% of species by area). |

| | | |
|---|--|--|
| Riparian Woodland (See Section 6.6 for detailed species prescriptions) | 800- 1600 stems per hectare 60% area native species 40% open space Average width 30m either side of the water course, varying where the management needs, terrain or landscape design require different approach. | The aim of this woodland type is to provide a significant buffer between productive forestry and watercourses and waterbodies that will increase biodiversity and enhance riparian and aquatic habitats. The species that are planted in riparian zones will be selected to match the NVC community for the appropriate soils type and detail of the proposed habitat prescriptions is contained in Section 6.6. Native tree and shrub species will be established in clusters of variable density plantings appropriate to site type and framing other significant habitat (e.g. water vole grassland). A light level of grazing by herbivores sufficient to allow regeneration of a characteristic range of trees and shrubs and a well-developed field layer will be tolerated although deer control will be sufficient to allow establishment of transplants and eventually progression to regeneration. The long term aim is that this habitat type will develop to form a permanent network of 'natural reserve' habitat so the fluctuation of levels of open space and woodland will be tolerated although prolific conifer regeneration that will compromise overall aims will be removed. |
| Low Impact Silvicultural Systems (including Riparian LISS) | Dependent on the individual system chosen and the seed sources available | LISS is proposed as a prescription where climate is suitable and where it will achieve specific aims – for example addressing water or soil quality/stability issues, enhancing landscape value and/or contributing to biodiversity enhancement. As forests move through the initial thinning regimes a decision will be taken as to which LISS is most appropriate for the site and the management aims. Most commonly shelterwood systems will be practised, avoiding clearfelling areas larger than 2 hectares. Full management prescriptions are contained in the coupe workplan for each LISS area. |
| Minimum intervention | Dependent on individual area | Minimum intervention is proposed where the land is predominantly wooded or progressing towards woodland cover. The aim of this management type is to develop semi-natural habitats in the future. Depending on how the woodland structure develops, it might be desirable to change the management type, so some thinning and/or group felling can take place to diversify stand or species composition. Use of MI classification allows this change to be made in the future as MI doesn't have to apply in perpetuity. |
| Natural Reserve | Dependent on individual area | A natural reserve is predominantly wooded and permanently identified and is sited in a location where it will be of particularly high biodiversity benefit (for example riparian woodland). All NRs will be managed by minimum intervention unless alternative management has higher conservation or biodiversity value. Any management operations proposed will solely be to protect the integrity of the habitat (for example removal of invasive non-native regeneration). The function of NRs is to provide continuity of habitat to allow sedentary species to establish and thrive. They provide reservoirs of permanent habitat from which more mobile species can expand into other areas of woodland. The two types of NR proposed will be based on semi-natural woodland origin and on plantation woodland origin. It is intended that most riparian woodland will eventually be adopted as natural reserve although with the management required to establish the appropriate species this cannot yet be the case. |
| Long Term Retention | Dependent on individual area | A LTR is a tree or stand of trees retained for environmental benefit significantly beyond the age or size generally adopted by North Highland Forest District. LTR's are proposed because the trees (not the land they occupy) are of significant landscape or biodiversity benefit. An LTR will be proposed where it is desirable to retain the existing stand beyond normal economic maturity for benefits noted, but there is no imperative to retain permanent woodland cover once the existing stand has fulfilled its objective. In most cases, when selected, LTRs will comprise a stand of stable standing trees however there may be cases where it is desirable to retain large patches of windblow to increase structural diversity and deadwood volume. This latter type of LTR, if present, will be sited where landscape is a low or insignificant priority. |
| Peatland restoration | (-) | This management type aims to restore valuable blanket bog habitat to favourable condition and is to be applied on sites where the likelihood of success is high (poor tree growth rate in previous rotation combined with significant peat depth, high water table, presence of Sphagnum etc.) and where potential environmental benefits are highest (high probability of being turned into net carbon sink, adjacency to and/or hydrological links with designated peatland sites and/or non-designated active bogs, adjacency to high sensitivity sites for dunlin and golden plover). After removal of the crop (depending on size of the trees by either felling or mulching) works to block drains and furrows and to remove regenerating non-native trees will be undertaken. Rising water table is likely to inhibit natural regeneration of tree species, but regeneration of native broadleaves (up to 10% of the area) will be accepted, primarily associated with drier knolls (significantly above the water table) and watercourses (where presence of native trees benefits riparian habitats). |

| | | |
|-----------|-----|---|
| Open Land | (-) | Land is maintained as open habitat for biodiversity gain where specific species or habitat types will benefit or where another land management objective exists (e.g. agriculture – crofting tenure). Open land will also be specifically prescribed where large scale heritage sites, not able to be accommodated in the standard open space of other habitat types needs protected. Open space will form a key element of native and riparian woodland expansion. Open land as defined in this LMP will comprise a maximum of 20% broadleaf woodland or 10% broadleaf woodland and 10% conifer woodland, primarily associated with improving riparian habitats. |
|-----------|-----|---|

NB:

- All procurement of planting material will adhere to the current guidance (FCS, 2007) on the sourcing of forest reproductive materials.
- All operations will adhere to the Controlled Activities Regulations 2005 General Binding Rules with respect to appropriate buffer strips between restock areas and water bodies.
- It is anticipated that initial applications of potassium, phosphate and nitrogen may be required to establish productive conifer crops. Any requirement for detailed remedial fertiliser programmes will be decided following foliar analysis. Heather control and silvicultural mixtures will be used as a first alternative to fertiliser application. Any initial or remedial fertiliser programmes will adhere to current industry best practice and follow FC Guidelines on water catchment protection. Restocking will be carried out with the principles of pesticide and fertiliser reduction foremost.

6.5 Productive Forestry Prescriptions

| Soil Group | Soil types relevant to North Highland FD | Characteristics | Species Prescription for Commercial Restocking |
|------------|--|--|---|
| 1 | Brown earth | Soils with typically good aeration and drainage throughout the profile and well-incorporated organic matter. These soils range from very rich to poor and usually allow deep rooting. Likely vegetation to be encountered includes broad leaved grasses, (e.g. Yorkshire fog, Bent), bracken, bramble, foxgloves, violets and a diverse range of herbs. | <p>Douglas Fir on Poor (must be without heather) to Rich fertility with Moist to Dry soil moisture. Desirable intimate or group mixture; European Larch*, Norway Spruce or Western Red Cedar. Generally in sheltered areas with sufficient rainfall</p> <p>Sitka or Norway Spruce on Poor to Medium fertility with Wet to Fresh soil moisture. Desirable intimate or group mixture; each other or European/Hybrid Larch*</p> <p>Scots Pine in Podzolised areas on Poor to Medium fertility with Moist to Dry soil moisture. Desirable intimate or group mixture; Japanese/Hybrid or European Larch*</p> <p>European Larch* on Medium to Rich fertility with moist to Moderately Dry soil moisture. Desirable intimate or group mixture; Scots Pine or Douglas Fir</p> <p>Japanese/Hybrid Larch* on Poor to Medium fertility with Very Moist to Fresh moisture. Desirable intimate or group mixture; Scots Pine</p> <p>Sycamore on Medium to Rich fertility with Moist to Fresh soil moisture. Desirable intimate mixture: Ash† or European Larch*</p> <p>Where improved climatic conditions allow:</p> <p>Sessile Oak on Medium to Rich fertility with Moist to Slightly Dry soil moisture. Pedunculate Oak (Local seed source if possible) on Medium to Rich with Very Moist to Fresh soil moisture. Desirable intimate/group or blocky mixtures include; Norway Spruce, European Larch*, Western Red Cedar, Silver Birch or Ash†</p> <p>Silver Birch on Poor to Medium with Very Moist to Fresh soil moisture. Desirable intimate or group mixture: Oak or Scots Pine</p> <p>Ash† on Rich fertility with moist to Fresh soil moisture and less acidic sites. Mix in groups with; Sycamore, Oak or Beech</p> |
| 3 | Podzols | <p>Develop on unfertile acid soils with high rainfall where nutrients are flushed into the lower horizons of the soil profile. Very poor fertility. Induration or an impenetrable pan will prevent good drainage, resulting in a need to break this impediment with suitable cultivation that will allow freer draining and greater rooting depth.</p> <p>Vegetation common to these soils are ericaceous plants, grasses including Wavy hair, Matt and Purple moor grass. Light bracken and feather mosses may also be present.</p> | <p>Scots Pine with Moist to Dry soil moisture. Desirable mixture; intimate mixture with Hybrid Larch*</p> <p>Sitka Spruce with Wet to Moist soil moisture. Mix with; Lodgepole Pine in wetter areas or Japanese/Hybrid Larch*</p> <p>Japanese/Hybrid Larch* with Very Moist to Fresh soil moisture</p> <p>Where improved climatic conditions allow:</p> <p>Sessile Oak (not on 3m) with Moist to Fresh soil moisture. Desirable mixture; Hybrid Larch*, Scots Pine or limited Norway Spruce</p> |
| 4 | Ironpans | Develop on free draining acid soils with high rainfall. The transfer of aluminium and iron in solution down through the soil profile develops an ironpan that is impervious to water and root penetration. Vegetation and fertility is similar to that of Podzols above | <p>Scots Pine with Moist to Dry soil moisture. Desirable mixture; Japanese/Hybrid Larch*</p> <p>Japanese/Hybrid Larch* with Very Moist to Fresh soil moisture. Desirable mixture; Scots Pine</p> <p>Lodgepole Pine in elevated areas with Wet to Fresh soil moisture</p> <p>Sitka or Norway Spruce (4 & 4b) with Wet to Fresh soil moisture. Desirable intimate or group mixture; Lodgepole Pine in wetter areas or Japanese/Hybrid Larch* or Scots Pine.</p> <p>Sycamore (4b only) with Moist to Fresh soil moisture. Consider intimate mixture with Japanese/Hybrid Larch*</p> <p>Breaking of the ironpan is desirable; so as to allow drainage of the site and a potential increase in soil rooting volume and nutrient availability, therefore cultivation that includes amelioration of the ironpan will be considered.</p> |
| 5 | Groundwater gleys | Dominant vegetation is commonly Tufted hair grass, Willows and herbs. Occurring where a shallow water table causes waterlogging and therefore subject to compaction and poorly oxygenated. The soil is permeable but is affected by a fluctuating ground-water table. Moderate nutrient availability. | <p>These areas are generally presumed to be open or riparian zones. <u>Productive planting will be outwith the 30m buffer zone of native woodland.</u> Where rooting depth is adequate:</p> <p>Sitka or Norway Spruce on Medium to Rich fertility with Very Wet to Moist soil moisture. Consider adding blocks of Downy Birch and Alder</p> <p>Intimate mix of Downy Birch and Common Alder on Poor fertility with Very Wet to Moist soil moisture</p> |

| | | | |
|----|-------------------------------|--|--|
| 6 | Peaty Gleys | Very Poor to Rich nutritional availability, these soils are indicated by Purple moor grass, Calluna and Cross-leaved heath, with sphagnum prevalent in the North and West. | Sitka Spruce on Poor to Medium fertility with Wet to Fresh moisture. Experience in North Highland suggests this crop will rarely establish as a pure stand without fertiliser input. Intimate mix with Lodgepole Pine in wetter and poorer areas or with Japanese/Hybrid Larch* in more Podzolised areas. Consider adding blocks of Downy Birch Downy Birch on Poor to Medium fertility with Very Moist to Fresh soil moisture High winter water table can be expected and good drainage will be required to achieve best results. |
| 7 | Surface Water Gleys | Differing from groundwater gleys in that waterlogging is caused not by a high water table, but by lateral surface-water movement through the soil profile developing a seasonally fluctuating water table. Resulting anaerobic conditions will restrict rooting. Indicative vegetation includes Tussock grass and Creeping Buttercup. Again poor to moderate nutritional availability can be expected. | Sitka or Norway Spruce on Medium fertility with Wet to Fresh soil moisture. Desirable mixture; each other, Japanese/Hybrid Larch* or with Lodgepole Pine in wetter poorer areas Where improved climatic conditions allow: Pedunculate Oak on 7b Medium to Rich fertility with Moist to Fresh soil moisture. Desirable group or blocky mixture; Norway Spruce Drainage will be required along with micro site cultivation such as mounding. |
| 8 | Juncus bog | Rushes are prevalent. A shallower peat type, nutrient rich and containing some mineral grains. Peat is black in colour. | FC Forests and Peatland Habitats Guideline Note (2000) and FCS Practice Note 'Forestry on peatland habitats' (2014) states that : 'where the site is a priority for habitat restoration on ecological grounds (to open habitat or native/bog woodland) , conventional restocking will not be required'; 'where site is not priority for restoration to open peatland or bog/other type of native woodland and it's unlikely to support tree growth greater than Yield Class 8 (Sitka spruce), the appropriate option will be to create peatland edge woodland' 'where the site is not a priority for restoration and it's likely to support rapid enough tree growth to compensate for greenhouse gas losses from the soil – understood to be Yield Class 8 or above for Sitka Spruce – then the conventional restocking should be undertaken' It may be therefore considered that more fertile, flushed peats and areas of deeper peat where hydrology has been irreversibly compromised will remain suitable for restocking. Where areas of deeper peat are encountered in intimate mosaic with more favourable soils Sitka Spruce (QSS) will be favoured in a mixture with Lodgepole Pine of disease resistant provenance or Hybrid Larch. On these more nutritionally challenged sites a proportion (up to 20%) of soil improving species such as birch will be considered. |
| 9 | Molinia bog | Often existing on hillsides where flushing is more pronounced. Moderate nutrition available. | |
| 10 | Unflushed Flat or Raised Bogs | Sphagnum Moss dominated bogs, formed as peat levels rose to form a dome, reliant on precipitation for moisture and nutrients. Mineral grains are absent and the peat is reddish-brown and tends to be deeper. | |
| 11 | Unflushed Blanket Bogs | Calluna, cotton-grass, deer grass bogs including the hill peats located on upland plateaux and hillsides deeply dissected by burns. | |
| 14 | Eroded Bogs | Very poor nutritional status characterised by bog asphodel, deer grass, bog cotton etc. Can be dominated by either deep and frequent eroded areas (haggs) or frequent pools of standing water (flows). Very deep peat. | |
| 15 | Littoral soils | Formed on coastal sands and shingles, such as the dunes found at Morrish More near Tain. The category is split into shingle (15s), dunes (15d) and then sands with varying water table depths (15e,w,g,i). These sands can be distinguished by various levels of mottling. Coastal grasses and heathland plants predominate. | |
| | | | |

NB – These prescriptions must be adopted within the local context set out in the main body of this Land Management Plan. Climate, (along with soils) must be included as **the** determining factor in final species selection.

- Planting will generally become a mosaic of the species recommended above and will include areas of non-productive open ground and broadleaf riparian zones. Species choice will be dictated by local conditions and agreed after site visits by management staff.
- No commercial forestry type likely to be suitable on sites wetter than SMR "Very Moist" and vegetation indicating SNR <4.5
- Origin for SS is QSS.
- *Given the requirements of Ramorum (on larch) Action Plan for Scotland (2015), and reports of new *Phytophthora ramorum* outbreaks (e.g. Raasay), despite the North Sutherland LMP area being in Zone 3, the lack of planting material might not allow for using Larch while restocking. If that's the case, alternative species to be used will be agreed at 75% site visit and/or at the work plan stage of planning process.
- Origin for LP is ALP.

-
- Mixed stands mean that each species occupies at least 20% of the canopy. Blocky areas should aim to cover the area that 3-4 mature trees would cover. Mixtures may need management to favour one or more species. Intimate mixtures of broadleaves with Sitka Spruce or Scot's Pine will normally result in the conifer's dominating overtime so planting in blocks is often the better option.
 - †Movement of any plant-passported Ash plants, trees and seeds within Great Britain is, until further notice, prohibited under UK Government legislation (2012 Plant Heath Order No. 2707) introduced on 29.10.2012.

References:

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Pyatt, G; Ray, D; Fletcher, J (2001) *An Ecological Site Classification for Forestry in Great Britain; Bulletin 124*, Edinburgh: FCS

Savill, P.S. (1991) *The Silviculture of Trees used in British Forestry*, Oxfordshire: CAB International

Mason, B (2006) *Managing Mixed Stands of Conifers and Broadleaves in Upland Forests of Britain*, Information Note, Edinburgh: FCS

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<http://www.forestry.gov.uk/fr/INFD-8CVE4D>

6.6 Native woodland prescriptions

| Soil Group | Soil types relevant to the North Highland FD | Characteristics | Aim* | Indicative Species Prescription** |
|------------|--|---|--------------------|--|
| 1 | Brown Earths | Soils with typically good aeration and drainage throughout the profile and well-incorporated organic matter. These soils are mainly * fertile and allow deep rooting. Likely vegetation to be encountered includes fine grasses, holcus, bracken, bramble, foxgloves, violets and a diverse range of herbs. * However Podzolic Brown earths where nutrients have been leached are "Very Poor" | NW | <p>W19 Juniper wood with sorrel (At least 50% Juniper; other species: Downy birch, Scots pine, Rowan) on 1, 1u, 1z and 1b from sheltered sites up to sub alpine areas with DAMS < 22</p> <p>W18 Scots pine with heather (50% to 70% Scots pine; other species: Downy & Silver birch, Rowan) on 1z in cool to warm with DAMS < 18</p> <p>W11 Upland oak-birch with bluebell (At least 50% Sessile oak with Downy birch; other species: Silver birch, Holly, Pedunculate oak, Aspen) on 1, 1u and 1z in cool to warm with DAMS < 18</p> |
| 3&4 | Podzols & Ironpan soils | Developed on Acid * soils with high rainfall where nutrients are flushed into the lower horizons of the soil profile. Frequently induration or an impenetrable pan will prevent good drainage, resulting in a need to break this impediment with suitable cultivation that will allow freer draining and greater rooting depth. Vegetation common to these soils are ericaceous plants, grasses including deschampsia flexuosa, nardus, carex and molinia. Light bracken and feather mosses may also be present. * NOT fertile soils | NW RW | <p>W18 Scots pine with heather (50% to 70% Scots pine; other species: Silver/Downy birch, Rowan, Juniper) on 3, 3m, 4, 4z and 4b Not in Sub-alpine climate, (Cool to Warm) DAMS < 18.</p> <p>W19 juniper wood with sorrel (at least 50% Juniper; other species: Downy birch, Scots pine, Rowan) on 3 and 4b Possible up to Sub-alpine zone</p> <p>W17 Upland oak-birch with blueberry (At least 50% Sessile oak with Downy birch; other species: Silver birch, Pedunculate oak, Holy and Rowan) on 3s and 3ms Mainly in Lower Cool to warm climate zone. DAMS < 18.</p> |
| 5 | Groundwater Gleys | Dominant vegetation is commonly Deschampsia caespitosa, Holcus, salix spp and herbs. Occurring where a shallow water table causes waterlogging and therefore subject to compaction and poorly oxygenated. The soil is permeable but is affected by a fluctuating ground-water table. Moderate nutrient availability. | NW RW | <p>W7 Alder-ash with yellow pimpernel (50% Alder with Ash†; other species: Downy birch, Common hawthorn, Goat willow, Hazel) on 5 and 5f</p> <p>Cool to Warm. Sheltered to Moderately exposed. (DAMS <16)</p> |
| 6 | Peaty Gleys | Very Poor to medium nutritional availability, these soils are indicated by Molinia, Calluna and Erica spp, with sphagnum prevalent in the North and West. High winter water table can be expected and good drainage will be required to achieve best results. | NW RW | <p>W18 Scots pine with heather (50% to 70% Scots pine; other species: Downy & Silver birch, Rowan) on 6z "moist" to "fairly dry"</p> <p>W4 Birch with purple moor-grass (50% to 70% Downy birch; other species: Goat willow, Alder) on 6 and 6b. Cool to Warm. DAMS < 18.</p> |
| 7 | Surface Water Gleys | Differing from groundwater gleys in that waterlogging is caused not by a high water table, but by induration preventing adequate drainage leading to a seasonally fluctuating water table. Resulting anaerobic conditions will restrict rooting. Indicative vegetation includes Holcus, Juncus, Nardus and Deschampsia caespitosa. Again poor to moderate nutritional availability can be expected. Drainage will be required along with micro site cultivation such as mounding.. | NW RW | <p>W11 Upland oak-birch with bluebell (At least 50% Sessile oak with Downy birch; other species: Silver birch, Holly, Pedunculate oak, Aspen) on 7b</p> <p>W18 Scots pine with heather (50% to 70% Scots pine; other species: Silver/Downy birch, Rowan, Juniper) on 7z possibly on margins leading to drier knolls.</p> <p>W7 Alder-ash with yellow pimpernel (50% Alder with Ash†; other species: Downy birch, Common hawthorn, Goat willow, Hazel) on 7, 7b and 7z Cool to Warm. Sheltered to Moderately exposed. (DAMS <16)</p> |
| 8 | Juncus Bogs | Juncus spp are prevalent. A shallower peat type, nutrient rich and containing some mineral grains. Peat is black in colour. | NW RW | <p>W4 Birch with purple moor-grass (50% to 70% Downy birch; other species: Goat willow, Alder) on 8b and 8c.</p> |
| 9 | Molinia Bogs | Often existing on hillsides where flushing is more pronounced. Moderate nutrition available. | NW RW OG | <p>W4 Birch with purple moor-grass (50% to 70% Downy birch; other species: Goat willow, Alder) on 9a, 9b, 9c and 9d suitable for the transitional areas at the margins between productive forest blocks and peatland restoration sites.</p> <p>9e Trichophorum, Calluna, Eriophorum, Molinia Bogs will not be planted or restocked - restoration of peatland.</p> |

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| 10 | Unflushed Flat or Raised Bogs | Calluna, Eriophorum, Trichophorum Bogs including the hill peats located on upland plateaux and hillsides deeply dissected by burns. | OG | 10b Upland flat or raised bogs – priority areas for peat restoration. |
| 11 | Unflushed Blanket Bogs | Calluna, Eriophorum, Trichophorum Bogs including the hill peats located on upland plateaux and hillsides deeply dissected by burns. | OG | 11a A rare peatland type mainly restricted to the driest eastern uplands |
| | | | OG | 11b,c,d Unflushed blanket bogs - priority areas for peatland restoration |
| 14 | Eroded bogs | Very poor nutritional status characterised by bog asphodel, deer grass, bog cotton etc. Can be dominated by either deep and frequent eroded areas (haggs) or frequent pools of standing water (flows). Very deep peat | OG | 14 & 14h Hagged bogs – unsuitable for forestry or woodland – peatland habitat |
| | | | OG | 14w Pooled bogs – common across Northern Scotland forming the ‘Flows’ – peatland. |
| 15 | Littoral soils | Wormed on coastal sands and shingles, such as the dunes found at Morrich More near Tain. The category is split into shingle (15s), dunes (15d) and then sands with varying water table depths (15e,w,g,i). These sands can be distinguished by various levels of mottling. Coastal grasses and heathland plants predominate. | NW | W16 Lowland oak-birch with blueberry limited to “Warm” climate (at least 50% Sessile oak with Downy/Silver birch; other species: Pedunculate oak, Holly, Rowan and Aspen). |

Aim* : NW - Native Woodland Expansion / RW – Riparian Woodland Expansion / OG – Managed Open Ground e.g. peatland restoration

Indicative Species Prescription** : details of restock proposal will be agreed at ‘75% site visit’. In some circumstances (e.g. difficult/limited access, poor nutrient availability, exposure) establishment of any native species, providing at least 20% of canopy cover, will be accepted. On better, productive sites (e.g. PAWS) the aim will be to establish native species at commercial densities with up to 80% of canopy cover.

†Movement of any plant-passported Ash plants, trees and seeds within Great Britain is, until further notice, prohibited under UK Government legislation (2012 Plant Health Order No. 2707) introduced on 29.10.2012.

NB – These prescriptions must be adopted within the local context set out in the main body of this FDP. Climate must be included as a determining factor in final species selection.

- Planting will generally become a mosaic of the woodland types recommended above, dictated by local conditions and agreed after “75% Site Completion Visits”
- Particular note should be made of the inadvisability of planting the peatland types 10 – 14 that may predominate on marginal FD sites
- No native woodland type likely to be suitable on sites wetter than SMR “Very Moist” and veg indicating SNR <4.5

References:

Kennedy F (2002) *The Identification of Soils for Forest Management*, Edinburgh: HMSO

Pyatt, G; Ray, D; Fletcher, J (2001) *An Ecological Site Classification for Forestry in Great Britain; Bulletin 124*, Edinburgh: FCS

Rodwell J.S. and Paterson G.S. (1994) *Creating New Native Woodlands; Bulletin 112*, London: HMSO

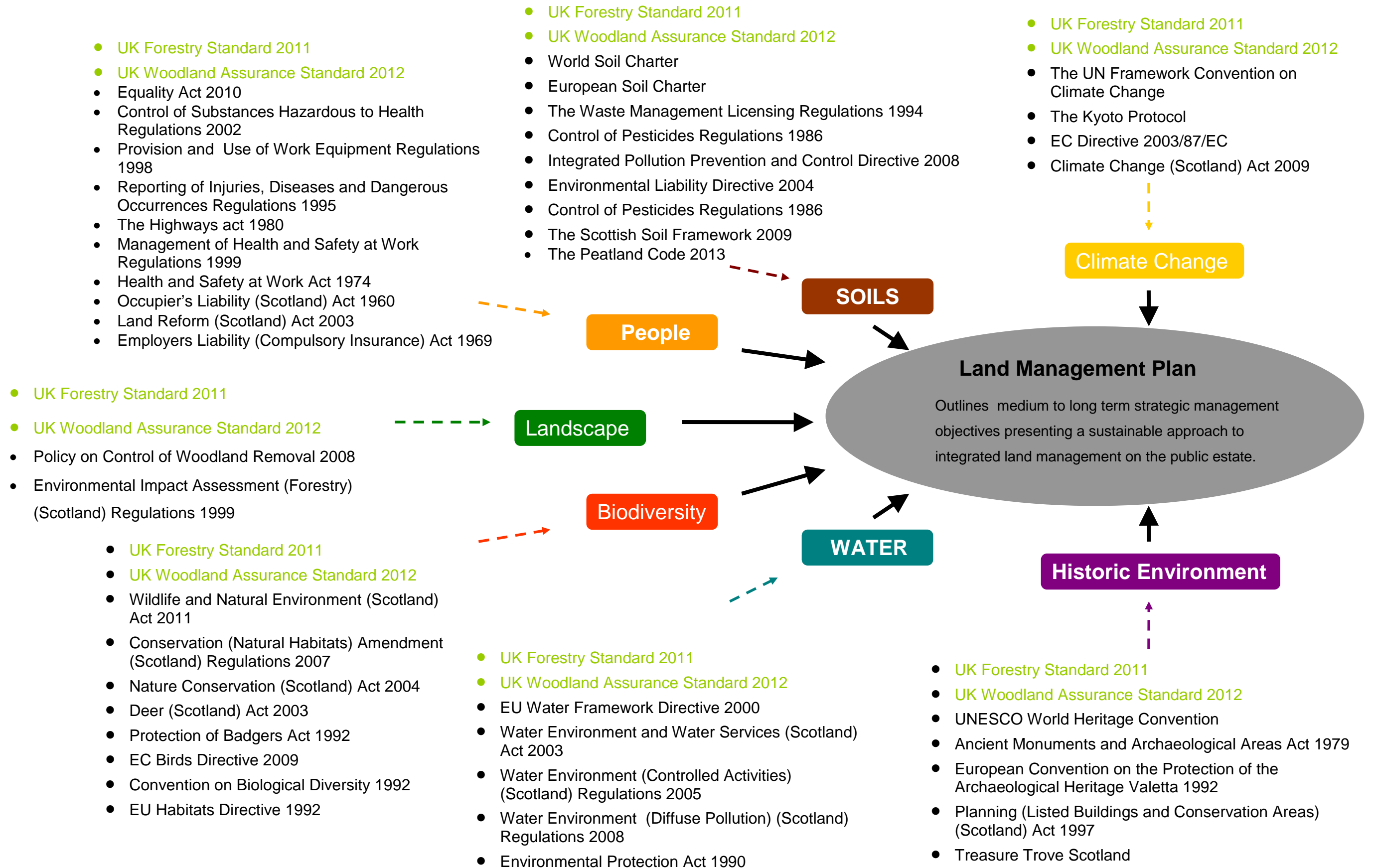
Thompson, R (2009) *Management of PAWS on the National Forest Estate in Scotland*, Edinburgh: FCS

Appendix I: The Relevant Planning Framework in Scotland

FC Scotland prepares Land Management Plans within the following planning framework:

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| <p>1. The National Level</p> | <p>Document name: The Scottish Government’s Scotland Performs 2007 – Present</p> |
| <p>Document purpose:</p> | <p>Reports on the Scottish Government’s attempts to create a more successful country through the seven purpose targets.</p> |
| <p>Document purpose:</p> | <p>Document name: The Scottish Government’s Land Use Strategy 2011 – Present</p> <p>Takes a strategic approach to achieving a more sustainable and integrated approach to land use in Scotland. Focusing on common goals for different land users it provides a set of principles for use as a policy guide and decision making tool.</p> |
| <p>Document purpose:</p> | <p>Document name: The Scottish Forestry Strategy 2006 – 2016</p> <p>Describes how the Scottish Government will deliver its forestry policies in Scotland and sets out the priorities for the next five to ten years.</p> |
| <p>Intended audience:</p> | <p>Local Forestry Commission Scotland team; Forestry Commission conservancy team; key stakeholders; statutory consultees; general public.</p> |
| <p>2. The Regional Level</p> | <p>Document name: Highland Forest & Woodland Strategy 2006 - Present (Consultative Draft)</p> |
| <p>Document purpose:</p> | <p>Provides a regional expression of the Scottish Forestry Strategy, describing priorities and programmes for using trees, woodlands and forestry to help meet the needs of the Highlands.</p> |
| <p>Intended audience:</p> | <p>Local Forestry Commission Scotland team; key stakeholders; statutory consultees; general public.</p> |
| <p>3. District Level</p> | <p>Document name: The Forest District Strategic Plan 2014 – 2017</p> |
| <p>Document purpose:</p> | <p>Serves as a guide to the management of forests within North Highland Forest District. It ensures that forestry activities reflect the local, economic, social and ecological individuality of the forests. Strategic objectives are presented within the context of the Scottish Executive’s strategic priorities for forestry in Scotland (e.g. to create a diverse forest resource for the future; make a positive contribution to the environment; to help communities benefit from woods and forests).</p> |
| <p>Intended audience:</p> | <p>Local Forestry Commission Scotland team; key stakeholders; statutory consultees; general public.</p> |
| <p>4. The Forest Level</p> | <p>Document name: The Land Management Plan (Covering a ten year period from date of approval)</p> |
| <p>Document purpose:</p> | <p>Takes a holistic view of integrated land management at the landscape scale, outlining the medium to long term strategic direction for integrated land management across the public estate.</p> |
| <p>Intended audience:</p> | <p>Local Forestry Commission Scotland team; key stakeholders; statutory consultees; general public.</p> |
| <p>5. Coupe Level</p> | <p>Document name: Work Plans (permanent coupe record)</p> |
| <p>Document purpose:</p> | <p>Each forest operation has a related Work Plan. At production of this plan, local staff will identify site specific interests and outline the constraints and opportunities that are relevant to the coupe at an operational scale not detailed in the LMP. Forms the record of all decisions made regarding coupe management.</p> |
| <p>Intended audience:</p> | <p>Local Forestry Commission Scotland team; key stakeholders; statutory consultees where required;</p> |

APPENDIX II: KEY POLICIES AND GUIDANCE



Appendix III - External consultation record

| Consultee | Date contacted | Date response received | Issues raised | Forest District response (incl. amendments made to plan as a result of consultee comments) |
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| Highland & Islands Conservancy | | July 2014 | H&I Conservancy was approached to comment on possible acquisition of Woodburn Farm and the proposal to use the acquired land for new woodland creation. The comments were: <ul style="list-style-type: none"> - The soils in lots 1 & 2 are suitable for trees; - The Woodland Creation Advisory Group's (WEAG) report should be taken into account when considering areas for planting. | The better grazing areas in lot 3 were not considered for woodland creation. Better grazing within lot 1 (south of Tullich cottage) will remain in agricultural use (grazing lease). WEAG's report consulted while developing management proposals – it will meet Recommendations: 1 (woodland creation), 2 (timber production), 3 & 11 (not planting on good agricultural land and integrating with other land uses), 16 (carbon sequestration) and 18 (making better use of existing woodland by creating opportunities for better access, timber haulage and connecting woodland habitats). |
| RPID (Golspie) | | July 2014 | RPID offered comments on local, district and regional farming context of Woodburn Farm: Locally there is high demand for grazing land. Retaining lot 3 in agricultural use may help with any negative issues the local community may have. There may be scope however to demonstrate good practice by integrating woodland creation and agricultural activity by keeping the grassland and improved grassland fields in agriculture. In context of woodland creation carried out on farms/estates in Altass area in recent years, the loss of more farmland to forestry might attract criticism. Making public that grassland and improved grassland would remain in agricultural production should appease those who are unwilling to accept any agricultural land being planted. | The better grazing areas in lot 3 were not considered for woodland creation. FE Better grazing within lot 1 (south of Tullich cottage) will remain in agricultural use (grazing lease). The outline management proposals to be made public. |
| The Highland Council – forestry department | 30.01.2015 and 25.09.2015 | No response | | |
| The Highland Council – archaeology department | 30.01.2015 and 25.09.2015 | No response | | |
| The Highland Council – TEC service | 30.01.2015 | 30.01.2015 | All public roads within the proposed Central Sutherland area are considered to be sensitive (exception: the agreed extraction routes: A836, A839 & A837 between Rosehall and Craggie). Anticipated timing and volumes needed to discuss the matter further. | The felling plan will be sent at a later stage of planning process. |
| SSE | 30.01.2015 | No | | |

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| | | response | | |
| Kyle of Sutherland Fisheries | 30.01.2015 | No response | | |
| FCS Archaeologist | 30.01.2015 | No response | | |
| SNH | 30.01.2015 | 18.02.2015 | <p>River Oykel Special Area of Conservation (SAC) More than 50% of forest covered by this LMP either lie in close proximity or flow into this SAC. It is protected for its freshwater pearl mussel and Atlantic salmon. Best practice guidance, such as 'Forest and Water Guidelines' and 'Protecting freshwater pearl mussel from siltation during harvesting operations' - FC Guidance Note 5 will be important for full implementation to reduce any impacts to this SAC. For example, existing drains should be realigned to ensure water is discharged slowly into riparian buffer areas. This could help to manage siltation effects during post-felling/fallow periods.</p> <p>Planning of drain blocking is recommended, especially in the mid to upper catchment, to reduce sedimentation and excess water flow. This could be done within the pre-felling phase and provide on-going benefits to the SAC into fallow periods. Managing trapped silt should be included within the planning phase as silt is one of the main risks that can damage freshwater pearl mussel.</p> <p>The Forest and Water Guidelines recommend minimum buffer widths; we recommend that the width of buffer areas are maximised wherever possible and planted with riparian trees in order to improve the SAC. We welcome that NHFD is already engaged in conservation work to benefit this SAC as part of the Pearls in Peril LIFE+ project.</p> <p>Caithness & Sutherland Peatlands SPA & SAC (Grudie Peatlands SSSI) Grudie Peatlands is protected for its peatland habitats and upland birds. We recommend that this LMP addresses any detrimental edge effect as outlined in the FCS 'Guidance to forest managers preparing Forest Plans within the Caithness and Sutherland Peatlands SAC/SPA'. The sensitivity maps for this area indicate that removing forest edge adjacent to this protected area would reduce the detrimental effect the forestry is having on golden plover and dunlin. In addition, between 15th of April and 15th of July, greenshank and golden plover can be protected by a 300m non-disturbance zone. Removing forest edge should also benefit blanket bog habitat. We also recommend blocking drains on these areas to</p> | <p>Water quality is a key objective of Central Sutherland LMP. River Oykel SAC, of high importance for freshwater pearl mussel and salmonids, will be given required protection; the District will ensure that all relevant regulations are adhered to and best practice is applied, in order to ensure minimal impact of forest operations on aquatic environment. The Plan highlights the importance of riparian woodland in protecting water quality (by intercepting pollutants) and generally improving water habitat by creating dappled shade and keeping the water temperature down, and by providing organic nutrients (leaves, woody debris).</p> <p>Grudie Peatlands SSSI (part of Caithness & Sutherlands SPA/SAC) will be given appropriate buffers to protect the peatland and waders (golden plover and dunlin) interests.</p> |

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| | | | <p>raise the water table to reduce the amount of tree regeneration. Management should be undertaken post-felling to remove any regenerating trees.</p> <p>Inverpolly, Loch Urigill and nearby Lochs SPA The SPA is protected for its black-throated divers. Adhering to best practice guidelines will be important to protect freshwater interests for these birds. Timing of forest operations in proximity of this SPA should take account of potential disturbance to breeding divers.</p> <p>Kyle of Sutherland Marshes SSSI We support positive fen management undertaken by NHFD in the recent past. Previous actions (e.g. mechanical swiping, cattle grazing) provided benefits to this scarce habitat.</p> <p>Reay – Cassley Wild Land Area (WLA) A wild land assessment of Ben More Forest could help identify whether there are any specific areas which could be managed specifically to benefit this WLA.</p> <p>Geological Conservation Review (GCR) Sites There are two GCR sites, which do not form part of a SSSI, within Ben More Forest. These are Loch Borrolan Intrusion and Allt na Caillich. Loch Borrolan has potential to be affected by forestry management. The extremely rare and of international significant igneous rocks should be left unforested – best example within the Benmore Forest is found on the hill to the east of Loch a’Mheallain.</p> | <p>Following the decision to exclude Benmore, Eining, Caplich and Craggan forests from Central Sutherland LMP area, the SPA is now outwith the proposal. The blocks mentioned above will form West Sutherland LMP, which will be reviewed within next 2 years.</p> <p>Following the decision to exclude Benmore, Eining, Caplich and Craggan forests from Central Sutherland LMP area, the Reay – Cassley WLA is now outwith the proposal.</p> <p>Following the decision to exclude Benmore, Eining, Caplich and Craggan forests from Central Sutherland LMP area, the GCR is now outwith the proposal.</p> |
| SEPA | 30.01.2015 | 30.01.2015 | Electronic version of current FDPs requested to assist with scoping exercise. | Management and future habitat maps of all FDPs to be replaced by Central Sutherland LMP sent on 03.02.2015. |
| Confor | 13.02.2015. 2015 | No response | | |
| SEPA | | 27.02.2015 | <p>1. General issues: The plan should include a clear analysis of the environmental risks of the proposal accompanied by information on how they will be addressed/mitigated. It should show on maps of 1:2500 or bigger scale details of areas of peat grater than 50cm, watercourse, lochs and wetlands and setback of planting and infrastructure from these. SEPA's general advice should be referred to.</p> <p>2. Flood risk: The LMP comprises six areas within the River Shin Catchment, River Oykel & River Carron Catchment where there are records of flood risk issues. The plan should consider impact of works on flood risks to downstream receptors; e.g. impact on flows, sediment transport, capacity of culverts and potential blockage of culverts.</p> <p>3. River Basin Management Plan (RBMP)</p> | <p>1.The plan will contain analysis of risks and measures to address or, where necessary, mitigate them. The operational details will be provided prior to operations taking place (work plan stage) as it is impractical to do at the land management plan scale. General advice will be adhered to.</p> <p>2. The Plan will outline general measures to be applied while managing harvesting, restocking and other sites where operations with a potential to impact water flows will be carried out. More site specific measures will be identified during the work plan stage of the planning process and applied if and when needed.</p> <p>3. Water quality is a key objective of Central Sutherland LMP. River Oykel SAC,</p> |

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| | | <p>As per The UK Forestry Standard, forest management should protect (and improve) the water environment by ensuring that forestry pressures on the aquatic environment are addressed and thus contributing towards RBMP. Currently there's no waterbodies below Good ecological status within LMP area.</p> <p>3.1. RBMP – River Oykel: The River Oykel is rich in freshwater pearl mussels which are very sensitive to water pollution including siltation from forestry operations. During the meeting between FCS and SEPA Operations and River Basin Management Plan staff it was identified that there may be a possible impact from sediment on the freshwater pearl mussel habitat in the River Oykel. There are also on-going improvements planned to the riparian zones in this area. This issue should be considered by the plan.</p> <p>The LMP should identify the location of any inappropriately designed or redundant structures that could be removed or improved (e.g. upgrading a culvert to allow fish passage or removal of redundant weir). Opportunities for morphological or ecological improvements should be considered.</p> <p>The LMP should confirm whether or not there are any invasive non-native species (e.g. North American signal crayfish, Japanese knotweed, Himalayan balsam, giant hogweed, rhododendron) are present in the plan area. If there are any, the Plan should outline proposals for control and removal.</p> <p>4. Felling and replanting proposals: The LMP should provide information on how protecting the environment has been considered when deciding on the proposals (in relation to timing and size of felled areas).</p> <p>The plan should confirm adherence to the UKFS and related Forestry guidelines and comply with Water Environment (Controlled Activities) (Scotland) Regulations (CAR).</p> <p>The plan should provide clear information of the minimum buffers to be included between the forest edge and each water body or abstraction. Riparian planting would be supported.</p> <p>The plan should identify the % of felling proposed in each water body catchment within a 3 year period. In line with UKFS less than 20% of acidified water body catchments and catchments which are sensitive to nutrient enrichment are felled in any three-year period.</p> | <p>of high importance for freshwater pearl mussel and salmonids, will be given required protection; the District will ensure that all relevant regulations are adhered to and best practice is applied, in order to ensure minimal impact of forest operations on aquatic environment. The Plan highlights the importance of riparian woodland in protecting water quality (by intercepting pollutants) and generally improving water habitat by creating dappled shade and keeping the water temperature down, and by providing organic nutrients (leaves, woody debris).</p> <p>3.1 All operations carried within River Oykel catchment will adhere to relevant regulations and best practice will be applied to minimise impact of operations on the water environment. Map 6 - Future Habitats shows the extend of proposed riparian planting.</p> <p>4. No waterbodies/catchments within the Central Sutherland LMP area suffer from acidification (as confirmed by SEPA in email from 28.01.2016). The timing of felling and the size of coupes within the Central Sutherland LMP area is very much dictated by the extent of wind and DNB related damage and the effort to maximise timber recovery from these sites. All relevant regulations will be adhered to in order to minimise any possible negative impact of forest operations on water quality.</p> |
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| | | <p>If greater than 20% is proposed to be felled in such period, then the plan should include an assessment of the likely effects it may have on local water bodies and design mitigation measures to address them.</p> <p>5. New supporting infrastructure: The plan should include (on map 1:2500 or bigger) any new infrastructure which may be required to facilitate plan proposals (e.g. any new or upgraded tracks, borrow pits etc.). Supporting infrastructure should be designed to avoid engineering activities in the water environment wherever possible. All water courses and water bodies, including draining ditches connected to water environment within planted areas should be considered as sensitive to effects from forestry activities and identified on a map of scale 1:2500 or bigger. Engineering activities in or adjacent to water environment are likely to need authorisation under Water Environment (Controlled Activities) (Scotland) Regulations (CAR) and adhere to Forest and Water Guidelines.</p> <p>6. Carbon balance and impact on peat: North-west boundary of Shin & Rosehall FDP is adjacent to Caithness and Sutherland Peatlands SAC, SSSI and RAMSAR designations which include peat bog habitat. If there are other areas of peat on or adjacent to any sites, then the plan should include a map showing peat depths across the site and identify any adjacent bog habitats. Proposals for new planting and replanting should demonstrate how they comply with <i>Supplementary Guidance to support the FC Forestry and Peatland Habitats Guidance Note</i>.</p> <p>7. Impact on wetlands: The UK Forestry Standard states that managers should 'Ensure that wetland features such as springs, flushes and bogs are protected' and take opportunities to restore degraded features'. The plan should provide opportunities for peatland and wetland restoration, for example, areas which are not going to be replanted, should be included in the proposal.</p> <p>8. Use of waste on site, including felling waste: The plan should outline proposals to make use of any waste wood on the site. These proposals should comply with SEPA's guidance Management of Forestry Waste.</p> | <p>5. The Plan outlines the location of planned new infrastructure, but given the necessary detailed surveys required to determine the exact route of a new roadlines, it is impossible to provide such level of information at the land management stage of the planning process. The exact route of a new road, location of necessary culverts and/or water crossings, draining ditches, borrow pits etc. will be determined at the work plan stage of the planning process.</p> <p>6. No new planting proposed on sites adjacent to designated peatland sites.</p> <p>7. The plan identifies which areas are not to be restocked. Further, more detailed plans will be drawn at work plan stage of the planning process, following detailed site investigation.</p> <p>8. Arisings from felling and thinning operations (lop and top) are not considered as waste in terms of this plan, because the material will be incorporated in the brush mat to aid machine traction and flotation thus protecting fragile soils. Additionally material will be retained on site to achieve deadwood objectives. Other branches and material left after harvesting contribute to the functional ecology of the woodland and are an important feature of nutrient recycling that will increase biodiversity and may assist future productive woodland establishment. Where the felling to recycle of non-</p> |
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| | | | 9. Pollution prevention and environmental management: Forest activities to be carried out following the best practice guidance outlined in UK Forest Standard Guidelines and other relevant best practice guidance. | native species occurs, the arisings have subsequent use including protecting vulnerable native tree regeneration from grazing mammals and again, contributing to the functional ecology of the woodland. 9. All relevant regulations will be adhered to and best practice applied in order to prevent any possible negative impact of forest operations on environment. |
| Mr M Munro | 05.03.2015 | | Meeting with Woodburn Farm's neighbour, Mr M Munro, to discuss the Parish access and grazing. | FC agreed to carry out necessary repairs and water management, and will install a new gate at the north end of the track (off A839). 4 areas have been identified as temporary (until summer 2016) available for grazing. Grazing agreement will be drafted. Some of the fences will be repaired and replaced where necessary. Bulk of the work will be carried out once an approved plan is in place. Mr Munro is to contact D. MacAskill to discuss fox and deer control in the area. FC may have conservation grazing available in the area that could supplement what is available at Woodburn. |
| FC Agricultural Adviser | 19.05.2015 | | Site visit to Woodburn Farm in order to assess the agricultural value of the land. The Woodburn Farm Agricultural Assessment states that: For the purpose of the assessment the Farm was split into 11 polygons of similar vegetation types; polygons 1 – 10 have capacity to hold 40 – 50 breeding sheep, but considerable winter supplementary feeding would be required to support them. The considerable costs required to reinstate fencing, improve and renew drainage and improve access would far out-weight any agricultural production. Such costs would not be good value to the public purse and the above mentioned polygons should be moved to woodland creation. Polygon 11 is better land, mainly dry semi improved grassland and it should remain an agricultural land. | Planting proposal will adhere to the recommendations. Full Woodburn Farm Agricultural Assessment will be appended to the Plan proposal. |
| NVC survey | June 2015 | | A NVC survey of Woodburn Farm was carried out. | The NVC survey results (a map and notes) will be appended to the Plan. |
| Braelangwell Estate | 23.06.2015 | 21.07.2015 | An email from Mr F McCulloch stating that, as the Estate's gamekeeper, he will act as contact for the Estate. | |
| HC Access Officer | 25.09.2015 | 13.10.2015 | Maintaining the level of public access to these forests as an adequate objective, however is not very aspirational in helping to deliver the vision set out in the LMP brief. Recent visit to the facilities in the LMP area proves that visitor experience is likely to be mixed. Concerns about standard of visitor facilities in Carbisdale and Gunns Wood (mainly vegetation encroachment). The purpose-built and/or promoted facilities should be maintained to 'allow public confidence in use of sites across the LMP area'. | |

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| | | | The community involvement at Rosehall should be highlighted within the LMP and action set out in the LMP for how to assist the community in this endeavour. Concerns about Glen Einig not being included in Central Sutherland LMP. | |
| Balcharn & Balnadelson Common Grazing | 25.09.2015 | No response | | |
| Balnagown Estate | 25.09.2015 | No response | | |
| Sallachy Estate | 25.09.2015 | No response | | |
| Mr David Hannah | 25.09.2015 | No response | | |
| Dounie Common Grazing | 25.09.2015 | No response | | |
| Ferry Croft Visitor Centre | 25.09.2015 | No response | | |
| Fountains Forestry | 25.09.2015 | 13.11.2015 | Telephone enquiry re. possible use of FE roads for timber haulage and proposed sequence of felling within the Central Sutherland LMP area. | Draft felling map sent out on 16.11.2015. Advice that Fountains Forestry should supply NHFD with map showing proposed felling areas, timing of operations and predicted volumes involved to take the matter forward. |

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| Garvary Common Grazings | 25.09.2015 | No response | | |
| Gruids and Laid Common Grazings | 25.09.2015 | No response | | |
| Gruids Common Grazings | 25.09.2015 | No response | | |
| Gruinards Common Grazing | 25.09.2015 | No response | | |
| Kyle of Sutherland Development Trust | 25.09.2015 | No response | | |

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| Mr J E Beasely | 25.09.2015 | No response | | |
| Kilmackalmack Common Grazings | 25.09.2015 | No response | | |
| Linsidemore Common Grazings | 25.09.2015 | No response | | |
| Mr M Munro | 25.09.2015 | 15.10.2015 (reply written by Mrs J Munro) | Concerns about lack of forestry related jobs for local people, deer management, lack of vermin control, restricted access along felled area of Altass, the purpose of acquisition of Woodburn Farm and possible impact on crofting community, visitor facilities (Ravens Rock) and FC as a landowner. | Mrs Munro's comments were forwarded the District Manager and to the heads of relevant teams within the District. An email to Mrs Munro sent on 20.10.2015 |
| Migdale Common Grazings | 25.09.2015 | No response | | |
| Mr M Wittet | 25.09.2015 | No response | | |
| Achinduich Farm | 25.09.2015 | No response | | |
| Mr D Brooker | 28.09.2015 | No response | | |
| Creich Community Council | 25.09.2015 | No response | | |
| Wind Prospect Developments Ltd | 25.09.2015 | No response | | |
| Rev K Anderson | 25.09.2015 | No response | | |
| Rhelonie Common Grazings | 25.09.2015 | 13.10.2015 | Enquiry about the boundary fence between Rhelonie forest and the common grazing (concerns about livestock escaping onto the road) | Contact details of FM Forester who will be able to help with fences sent to Ms McGettigan on 20.10.2015. |
| Lairg Community Council | 25.09.2015 | No response | | |
| Sleastery Common Grazings | 25.09.2015 | No response | | |
| SSE | 25.09.2015 | No response | | |

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|--|------------|-------------|--|--|
| Strathoykel Common Grazings | 25.09.2015 | No response | | |
| Michael Laird Architects (for Carbisdale Castle Ltd) | 25.09.2015 | No response | | |
| Rosehall & District Action Group (RADAG) | 25.09.2015 | No response | | |
| North Ross Deer Management Group | 25.09.2015 | No response | | |
| Mr Ed Jackson | 25.09.2015 | 14.10.2015 | Concerns about ragwort spreading from the clearfelled areas onto the grazing land, FC's participation in wind farm development consultation, the need to remove the redundant fencing materials, the need to plant more deciduous trees and the level of browsing (deer) on FC land. | An email explaining FC's position on issues highlighted by Mr Jackson sent out on 20.10.2015. |
| West Sutherland Deer Management Group | 25.09.2015 | No response | | |
| TA Gittins & Co | 25.09.2015 | No response | | |
| Mr M Baird Kyle of Sutherland Against Braemore (KOSAB) | | 14.10.2015 | Concerns about area available for windfarm, development in Braemore. Enquiry about the felling and restock proposals. | Email explaining that maps will be available at the later stage of planning and a link to Central Sutherland LMP area on FC's website sent on 14.10.2015. |
| Mr Alan Lawrence | | 14.10.2015 | Comments regarding Badarach Wood, adjacent to Mr Lawrence's property; enquiry about fences. | Email explaining proposed timing of felling of the wind damaged crop and contact details of FM forester who will be able to help with fence enquiry sent out on 20.10.2015. |
| Mr Matt Forrest | | 03.11.2015 | Mr Forrest has recently acquired a croft in Linsidemore and believes that he has a share in Linsidemore Common Grazing. Mr Forrest highlighted that the committee requires extension of the consultation period (original deadline set for 25.10.15). | Email extending the consultation period till 01.12.15, sent on 04.11.2015. An email enquiring about the Committee views on future management of the Common Grazing sent out on 06.01.2016.No further communication from the Linsidemore Common Grazing Committee or Mr Forrester received. |

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| Bonar Bridge Open Public Meeting | 12.11.2015 | | <p>Issues raised:</p> <ul style="list-style-type: none"> • fallen trees damaging fences and allowing sheep to escape into the forest; • night culling of deer; • 'messy' restock sites nor suitable for walking; • concern about wildlife in light of extensive felling in the area • proposed windfarm development in Braemore – discussion regarding felling and restock proposals for above area; • possible sale of part of Carbisdale forest (next to the Castle) and possible impact on public access and recreational facilities | The issues raised were addressed at the meeting. |
| Lairg Open Public Meeting | 17.11.2015 | | <p>Issues raised:</p> <ul style="list-style-type: none"> • possible sale of part of Carbisdale forest (next to the Castle) and possible impact on public access and recreational facilities; • concerns about possible windfarm development; • damage to fences caused by falling trees | The issues raised were addressed at the meeting. |
| RSPB | 23.12.2015 | 10.01.2016 | <p>RSPB comment to Central Sutherland LMP felling and restocking proposals:</p> <ul style="list-style-type: none"> • in general the LMP provide habitat improvements that will be beneficial to a range of woodland species; RSPB welcomes the inclusion of native woodland, riparian planting, open ground, natural reserve and significant areas of LISS; • positive comments regarding drawing back of the forest edge in Raemore (adjacent to Grudie Peatlands SSSI), but pulling it even further at its north-west margin would be of further benefit to waders; however the combination of slope and the proximity of coniferous forest means that the open ground to the north-east is unlikely to be particularly attractive to Golden plover and dunlin; • the intended mosaic of differently aged conifers and open ground together with nearby riparian planting in south-eastern part of Raemore will provide suitable habitat for black grouse; • both golden plover and dunlin present in Invershin area – these wader species would benefit from drawing of the eastern corner of the forest back, to create open habitat around Loch Lesigein. | |
| Kyle of Sutherland Development Trust | 07.01.2016 | | Kyle of Sutherland Development Trust (Mr C Couston) has requested (via Forest Liaison Officer) information regarding District's proposal for Inveroykel in connection to proposed hydro-scheme. | Draft felling map sent to Mr Couston on 07.01.2016. A link to draft restock map available on FC website sent to Mr Couston on 08.01.2016 |

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| Mr David Brooker | 11.03.2016 | | A map showing new planting proposal on Woodburn Farm and a letter inviting comments. (copy emailed to Mr Brooker's solicitor) | An email from Mr Brooker requesting that no further correspondence regarding Woodburn Farm is to be sent to his solicitor. No further comments received. |
| Mr J E Beasley | 11.03.2016 | No response. | A map showing new planting proposal on Woodburn Farm and a letter inviting comments. | No response |
| Mr M Wittet | 11.03.2016 | | A map showing new planting proposal on Woodburn Farm and a letter inviting comments. | No issues raised regarding new planting proposal in email (concerning other matters) from 30.03.2016. |
| Mr M Munro | 11.03.2016 | | A map showing new planting proposal on Woodburn Farm and a letter inviting comments. | Phone call from Mr Munro received on 24.03.20.16. No issues regarding the planting proposal. No further comments received. |
| Rev K Anderson | 11.03.2016 | No response. | A map showing new planting proposal on Woodburn Farm and a letter inviting comments. | No response |
| SNH | 19.04.2016 | | Meeting invitation for a site visit in Raemore Wood to discuss forest edge and sites sensitive for waders. | Meeting invitation declined by SNH (other commitments). R Wallace (FCS) and A Baranska (NHFD) met on site on 27.04.2016. Agreed proposed forest edge withdrawal was sent for SNH's consideration on 28.04.2016. |
| The Highland Council – TEC service | 26.04.2016 | No response. | A map showing areas proposed for felling within the next 10 years, plus a table giving a summary of areas and timber volumes involved was sent to HC to allow for comments regarding timber transport issues within the LMP area. | |
| SNH | 28.04.2016 | 23.05.2016 | A map showing the forest edge withdrawal proposed by SNH to secure waders interest of the designated site (Grudie Peatlands SSSI) | The restock proposal amended as advised by SNH. |
| SEPA | 22.06.2016 | 25.07.2016 | Further clarification requested on flood risk management, felling to recycle, use of felling waste, deadwood and new planting proposal. Issues raised by SEPA were discussed over a phone with SEPA's Planning Officer on 25.07.2016. | LMP text amended as advised by SEPA. |
| SNH | 22.06.2016 | 25.07.2016 and 11.08.2016 | Clarification for management proposals for Kyle of Sutherland Marshes SSSI and forest edge withdrawal in Raemore Wood (Grudie Peatlands SSSI) requested. Meeting to discuss the request was held on 11.08.2016. | Designates Site Planning and Appropriate Assessments for River Oykel SAC and Caithness and Sutherland Peatlands SPA, SAC and RAMSAR (Grudie Peatlands SSSI) amended as advised by SNH. |
| SEPA | 28.07.2016 | 02.08.2016 | A letter stating that SEPA will have no objections to the amended Central Sutherland LMP proposal. | |

Appendix IV – LMP Internal Consultation

An internal scoping meeting was held on 14th of May 2015 at the NHFD Forest District Office, Golspie with the following officers in attendance:

| | |
|--------------------|-------------------------------------|
| Tim Cockerill | Forest District Manager |
| Malcolm MacDougall | Planning Manager |
| Richard Wallace | Regulations and Development Manager |
| Susan Dolby | Environment Forester |
| Hazel Maclean | CRT Manager |
| Hugh Mackay | Programme Manager |
| Avril MacLennan | Planning Forester |
| Roddy MacLeod | FM Area Forester |
| Seam Miller | Operational Forester |
| Graham Johnstone | Operations Forester |
| Steve Jack | CRT Stewardship Forester |
| Stephen Fraser | Forestry Liaison Officer |
| Derick Macaskill | Wildlife Ranger Manager |
| Agata Baranska | Planning Forester |

Issues highlighted during the scoping meeting were as follows:

- A full review of coupes was undertaken and HMK noted the coupes now in business planning that ideally shouldn't change.
- A review of the stakeholder list was undertaken and neighbours confirmed.
- A review of designations and other environmental constraints took place and the presence of a number of European Protected Species was noted. Special efforts required to protect water quality for Freshwater Pearl Mussels and Salmon.
- Following Forest & Water guidelines is essential and suitable riparian woodlands must be put in place.
- PAWS needs to be surveyed to inform future management decisions.
- SF reported on progress of Braemore wind farm development.
- CRT confirmed the locations of FCS facilities, core paths and Public Rights of Way. Visitor zoning should be included for these facilities and the rights of way should be protected. Expansion is unlikely due to limited founding & staff resources. Balblair forest (cycle trails) and Ferry Wood & Ord Hill (walks) are to be the main recreational provisions for central part of Sutherland. Following the catastrophic storm in January, the gorge path in Ravens Rock needs to be closed; given the extent of damage (landslide) it is unlikely that the entire length of the path can be restored. Continuous uncertainty regarding land around SAYH owned Carbisdale Castle means that FE will pull-out of managing the cycle trails in Carbisdale. Discussions continue (with Kyle of Sutherland Development Trust) regarding re-building of tourist facilities on the site of former Falls of Shin Visitor Centre.
- Birchwood should be considered for new woodland planting.
- Decisions about temporary grazing contract for Woodburn Farm required; fencing and planting plan to follow.
- Poor quality, affected by windblow and DNB should be marked for felling within the 1st 5-year period of the Plan.

MMD noted that new road requirements will have to be carefully considered given the limited resources (both staff and financial) available.

Follow up meetings and consultations have been held with Malcolm MacDougall (FD Planning Manager), Robin Waddell (FE Agricultural Advisor), Neil McInnes (Environment Manager), Roddy MacLeod (FM Forester), Derick Macaskill (FD Wildlife Ranger Manager), Alison Grant and Renate Jephcott (FCS Landscape Architects) to clarify issues and proposals.

Appendix V – Archaeological Record

| Designation | SAM Number | Feature description/location | Grid reference |
|--------------------|-------------------|---|-----------------------|
| Scheduled Monument | 1812 | The Ord, chambered cairns, cairns, settlements and field systems | NC 5733 0560 |
| Scheduled Monument | 1784 | Druim Baile Fuir, stone circle, cairns, hut circles and enclosure | NC 5600 0289 |
| Scheduled Monument | 1758 | Achany, cairn | NC 5684 0273 |
| Scheduled Monument | 5462 | Invershin Primary School, settlement | NH 5807 9816 |
| Scheduled Monument | 5497 | Invershin Farm, settlement and burnt mound | NH 5786 9680 |
| Scheduled Monument | 5470 | Invershin Farm, settlement and burnt mound | NH 5860 9660 |
| Scheduled Monument | 5498 | Invershin Primary School, settlement | NH 5790 9770 |

Appendix VI – Planted Ancient Woodland Site Appraisal

The NHFD PAWS monitoring programme, as directed by FES PAWS policy runs concurrently with LMP review periods. The table below summarises the results of the 2016 monitoring operation and compares the results to the previous survey. The full results of the survey have been added to the FES GIS GeoDataBase:

| Forest | AW ID | Area (Ha) | Aim | Threat Level | Threats | Actions Proposed |
|--|---------------|-----------|--|--------------|--|---|
| Inveroykel NC 4636 0087 | 4714 (216) | 4.91 | Full restoration to native woodland natural reserve by gradual conversion. | Secure | Non-native regeneration and herbivore browsing. | An operation to remove non-native regeneration will be undertaken in 2016 and deer management will be continued. Regular thinning operations will be undertaken to continue gradual removal of the non-native conifer overstorey and release remnant native trees. |
| Inveroykel NH 4987 9803 | 4736 (239) | 1.18 | Full restoration to native riparian woodland by clearfell. | Threatened | Adjacent non-native crop and non-native regeneration. | The adjacent crop is posing a significant threat to this small area of riparian PAWS. Clearfell is currently scheduled for 2018 and once this has been completed an operation to remove non-native regeneration will be undertaken. |
| Inveroykel NH 4854 9652 | 4766 (396) | 2.69 | Full restoration to native riparian woodland by clearfell. | Secure | Adjacent non-native crop, herbivore browsing and non-native regeneration. | The clearfelling has recently taken place and an operation to remove non-native regeneration will now be undertaken in 2016. Deer management will continue with the effects being monitored. If regeneration is not thriving at next monitoring round, tree guards will be used to allow it to establish. |
| Inveroykel NH 4737 9571 | 4769 (399) | 0.075 | Full restoration to native riparian woodland by gradual conversion. | Secure | Adjacent non-native crop, herbivore browsing and non-native regeneration. | This very small area of PAWS will eventually form part of a much larger riparian woodland and until that point the remnants will be protected by the removal of non-native regeneration. . If regeneration is not thriving at next monitoring round, tree guards will be used to allow it to establish. |
| Rhelonie NH 5245 9851 | 4798 (428) | 2.19 | Full restoration to native riparian woodland by clearfell. | Threatened | Non-native conifer overstorey, herbivore browsing and non-native regeneration. | Some halo thinning has been undertaken in recent years in this small PAWS area, however there remains an overstorey of spruce, larch and pine that is inhibiting regeneration. It is proposed to remove this overstorey by clearfell during phase 1 of this plan, protecting remnant native trees. A follow up operation to remove non-native regeneration will then be undertaken. |
| Carbisdale NH 5727 9553 NH 5712 9510 | 4802(432) | 9.04 | Full restoration to productive native woodland by low impact silvicultural | Threatened | Non-native conifer overstorey, herbivore | Partial clearfell of this area was undertaken during the previous plan period, largely as a result of windblow. The balance of the area remains a largely non-native conifer woodland. It is proposed to gradually remove this |

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| | | | systems | | browsing and non-native regeneration. | overstorey by LISS management. In the clearfelled areas there is now prolific regeneration of both native and non-native species and it is proposed to remove the non-native regeneration with successive cycles of hand pulling and cutting and treat rhododendron where it arises. |
| Carbisdale NH 5748 9533 | 4801 (431) | 3.34 | Full restoration to productive native woodland by low impact silvicultural systems | Secure | Non-native regeneration, invasive non-natives and herbivore browsing. | Removal of rhododendron from this area has created an excellent seed bed for regeneration and this is coming through with a mixture of native and non-native species. It is proposed to undertake an initial removal of non-native regeneration during 2016/17 and continue monitoring thereafter. |
| Linside NH 5226 9997 | 4735 (238) | 5.19 | Full restoration to riparian and productive coupes of native woodland. | Secure | Non-native regeneration and herbivore browsing. | The area has been partially clear-felled in 2016 and the remaining area will be clear-felled in the first phase of this plan. It is proposed to restock the productive elements of the coupe with scots pine and the extensive riparian areas of the coupe with native broadleaved species. To maintain the appropriate levels of dead/dying wood some retentions of Sitka spruce were necessary and the effects of this will be closely monitored during the next cycle to ensure that there is no threat of non-native regeneration across the wider coupe. |
| Linside NH 5344 9916 | 4796 (426) | 55.75 | Full restoration to productive native woodland by low impact silvicultural systems | Threatened | Non-native conifer overstorey, herbivore browsing and non-native regeneration. | This is a larger PAWS area comprising felled and restocked areas, mature crops of both native and non-native species and felled open areas. It is proposed to manage this area towards full restoration as a productive native woodland of mixed species. To achieve this regular cycles of non-native regeneration removal and thinning of the standing crops to favour native species are proposed. Deer management will continue with monitoring undertaken to assess effectiveness. |
| Ferrywood NC 5733 0679 | 4869 (8301) | 4.56 | Full restoration to native woodland by clearfell | Threatened | Non-native regeneration and herbivore browsing. | A recent clearfell (2015) has moved restoration on this forward significantly. The site will now be monitored for non – native regeneration and this will be removed during programmed operations. Species diversity will be increased by planting of native broadleaved species from local seed sources. |
| Ferrywood NC 5768 0660 | 4733 (236) | 5.13 | Full restoration to native woodland by clearfell | Secure | Non-native conifer overstorey, herbivore browsing and non-native | This area comprises a mixture of planted and naturally regenerated native species with some non-native regeneration from previous crops. A few remaining large Sitka spruce have very recently been removed as part of a visitor zoning operation. These areas will be monitored for non-native regeneration and this will be removed |

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| | | | | | regeneration. | periodically until gone from site. |
| Gruids NC 5676 0309 | 4713 (215) | 20.0 | Full restoration to productive native woodland by clearfell | Threatened | Non-native conifer overstorey, herbivore browsing and non-native regeneration. | The long term aim for this area is timber production compatible with biodiversity objectives. Following restocking in 2009 a significant proportion of the coupe was left unplanted and this is beginning to regenerate with native broadleaved species and some non –native regeneration. It is proposed to continue with periodic removal of non-native tree species across these open areas, increasing diversity by introducing native species from appropriate seed zones within LMP limits for open ground. |
| Gruids NC 5683 0226 | 4734 (237) | 4.32 | Full restoration to productive and riparian native woodland by low impact silvicultural systems. | Secure | Non-native conifer overstorey, herbivore browsing and non-native regeneration. | This PAWS area has two distinct objectives. South and west of the forest road the area will form part of a continuous band of riparian woodland protecting the Grudie Burn and adding to the FD area of native woodland. North of the road the area will be managed by LISS as a productive woodland, moving through conversion phases to 100% native species. The system proposed is group shelterwood. Periodic survey and operations to remove non-native regeneration across the whole area will be undertaken. |
| Achany NC 5723 0129 | 4868 (8300) | 5.7 | Full restoration to native woodland by regeneration management. | Secure | Non-native regeneration and herbivore browsing. | This site is primarily native woodland and forms part of the protective woodland for the River Shin catchment. It is largely intact and we propose to undertake periodic monitoring and remove non-native regeneration when it is encountered. |
| Achany NC 5737 0162 | 4793 (423) | 3.4 | Full restoration to riparian native woodland by clearfell | Threatened | Non-native conifer overstorey, herbivore browsing and non-native regeneration. | This site is being gradually clearfelled as a training site for a local training contractor. The coupe forms an important part of the riparian zone protecting the River Shin. During this plan period it's proposed to continue felling the non-native crop and some species diversity will be introduced by planting native broadleaves from appropriate seed sources. Non-native regeneration will be removed periodically following regular monitoring. |
| Achany NH 5729 9969 | 4715 (217) | 101.5 | Full restoration to productive and riparian native woodland by clearfell | Threatened | Non-native conifer overstorey, herbivore browsing and non-native regeneration. | Forming the main part of the woodland on the NFE in Achany Glen, this site is currently managed under LISS. Conversion to productive native woodland is the ultimate aim, however we aim to do this without committing to unsustainable programmes of non-native removal and by maximising the productive capacity of what is a relatively fertile site. Conversion to LISS will continue with thinning and small group fellings. During thinning operations we will |

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| | | | | | | prioritise heavier thinning in riparian areas and will undertake some supplementary planting of native broadleaved species. Non-native regeneration will be managed to be removed as thinning's at the earliest opportunity and native tree species will continue to be favoured. Where felling takes place any restocking will use native species. |
| Ravens Rock NC 4947 0065 | 4765 (395) | 4.9 | Full restoration to productive and riparian native woodland and open powerline wayleave, by clearfell | Threatened | Non-native conifer overstorey, herbivore browsing and non-native regeneration. | This site is currently mature woodland of both native and non-native species. It is also host to a red squirrel population, one of FCS' six key species. The coupe is scheduled for clearfell in 2028 and will then be restocked with native species with the aim of creating a native riparian woodland with a small element of productive native woodland. Throughout the period of this plan we will undertake monitoring and when necessary, removal of non-native regeneration and invasive non-natives such as rhododendron. |
| Rosehall NC 4796 0229 | 4806 (436) | 194.0 | Full restoration to productive and riparian native woodland by clearfell | Threatened | Non-native conifer overstorey, herbivore browsing and non-native regeneration. | Comprising almost all the Deer Park Forest this large site will be converted over time to a mixture of productive and riparian woodland comprising largely native species. This will be achieved by clearfell as per this LMP and by standard restocking operations. We will aim to increase species diversity in the short term by targeted planting of native broadleaved species in riparian areas. |

Appendix VII – Bibliography

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Central Sutherland

Land Management Plan 2016 - 2026

Plan Brief

Plan Brief

Background information

This LMP is a full revision of management proposals for an area previously covered by three separate Forest Design Plans (FDPs): Shin and Rosehall (2012 – 2022), Kyle of Sutherland (2006 - 2016) and Inveroykel and Rhelonie (2006 – 2016). It will also contain management proposal for the newly acquired Woodburn Farm. The farm and forest blocks mentioned above are located in Central Sutherland, west of Lairg and Bonar Bridge, and cover area of approximately 9891 ha.

Proximity to larger population centres of Lairg and Bonar Bridge, high visitor numbers and adjacency to important designated sites like Caithness and Sutherland Peatlands Special Protection Area (SPA) and Special Area of Conservation (SAC), Strath Carnaig and Strath Fleet Moors SPA and SAC, River Oykel SAC, Dornoch Firth and Morrich More SAC, Kyle of Sutherland Site of Special Scientific Interest (SSSI) and Dornoch Firth National Scenic Area (NSA) mean that water quality, conservation of protected species and habitats, recreation, timber production and landscape considerations are the main drivers behind the LMP proposals.

Strategic influence

The management of National Forest Estate is guided by The Role of National Forest Estate and Strategic Directions document (2013), which identifies six key aspirations for the publicly owned forests:

- **Healthy:** achieving good environmental and silvicultural condition in a changing climate;
- **Productive:** providing sustainable economic benefits from the land;
- **Treasured:** as a multi-purpose resource that sustains livelihoods, improves quality of life and offers involvement and enjoyment;
- **Accessible:** local woodlands and national treasures that are well promoted, welcoming and open for all;
- **Cared for:** working with nature, respecting landscape, natural and cultural heritage;
- **Good value:** exemplary, efficient and effective delivery of public benefits.

Drawing on these key themes North Highland Forest District (NHFD) prepared a three year District Strategic Plan, setting out a vision, priorities and objectives in the spirit of which the North Highland FD land management plans are prepared. Aims and objectives of Central Sutherland Land Management Plan were developed on the basis of National Forest Estate key aspirations and NHFD's commitments set in the District Strategic Plan (2014 – 2017).

Vision

Well managed productive forests that are accessible and enjoyed by the public, contribute to local economy and complement the scenic landscape of Central Sutherland. Extensive areas of native woodland and other rare habitats are linked with adjacent designated sites, support populations of protected species, and contribute positively to the water quality within the River Oykel and Kyle of Sutherland catchments.

Aims

- To restore valuable ancient woodland sites and expand network of riparian and native woodland.
- To manage the forests in a manner that positively contributes to water quality, with a special emphasis on watercourses supporting populations of fresh water pearl mussels and salmon.
- To manage the publicly owned areas of Kyle of Sutherland Marshes SSSI in a way that maintains their favourable condition.
- To manage the forests sympathetically to the landscape in order to improve their appearance.
- To maintain access to the forests and improve/maintain visitor facilities to ensure positive visitor experience.
- To optimise productive potential of the forests by matching restock species to site conditions; to sustain timber production at a level that supports local economy and wider timber industry; to increase area of productive broadleaves.
- To support local communities that are currently involved in management of their local forests, be open to working in partnership and encourage and support any new approaches.
- To contribute to climate change mitigation measures by maintaining sustainable timber production, creating areas of new woodland and facilitating woodfuel and renewable energy production.

The table below outlines the strategic aims, objectives and details how progress against these targets will be monitored.

| Aim | Objective | Monitoring |
|---|--|---|
| <p>To restore valuable ancient woodland areas and expand network of riparian and native woodland.</p> | <ul style="list-style-type: none"> Continue to monitor all planted ancient woodland sites. Where appropriate we will restore or enhance productive woodland comprising largely of native trees. | <ul style="list-style-type: none"> Implementation of the felling proposals will be reviewed annually through the delivery of harvesting programme and formally at LMP's 5 years review and 10 years revision Core ancient woodland sites will be monitored and reported on by Environment team using existing FCS environmental management protocols. Implementation of the future habitat proposals will be monitored annually through the restock programme and formally at LMP's 5 years review and 10 years revision |
| | <ul style="list-style-type: none"> Establish riparian woodland along major watercourses and native woodland at the forest blocks' boundaries and where it is likely to secure environmental benefit and/or improve the overall management. | <ul style="list-style-type: none"> Implementation of the future habitat proposals will be monitored annually through the restock programme and formally at LMP's 5 years review and 10 years revision. |
| | <ul style="list-style-type: none"> Work with Scotland's Environmental and Rural Services and our neighbours to develop a sustainable, landscape scale approach to deer management and promote National Forest Estate (NFE) as an exemplar of best practice. | <ul style="list-style-type: none"> Deer management will be monitored and reported on using existing FCS deer management protocols. |
| <p>To manage the forests in a manner that positively contributes to water quality, with a special emphasis on watercourses supporting populations of fresh water pearl mussels and salmon.</p> | <ul style="list-style-type: none"> Increase area of riparian woodland along Rivers Oykel, Shin, Carron and its tributaries, and other watercourses feeding into Kyle of Sutherland. | <ul style="list-style-type: none"> Implementation of the future habitat proposals will be monitored annually through the restock programme and formally at LMP's 5 years review and 10 years revision |
| | <ul style="list-style-type: none"> Protect the integrity of all watercourses during management operations and into long term by applying measures outlined in forest and water guidance. | <ul style="list-style-type: none"> Special measures will be identified through work plan process and will be monitored through good site management and 75% site visits* . |
| | <ul style="list-style-type: none"> Work in partnership with organisations such as Fisheries and SEPA to understand the influence of forest operations on the condition of watercourses within the area. | <ul style="list-style-type: none"> On-going process lead by the Environment and Planning teams. Progress will be reviewed formally at LMP's 5 years review and 10 years revision. |

| | | |
|--|--|--|
| <p>To manage the publicly owned areas of Kyle of Sutherland Marshes SSSI in a way that maintains their favourable condition.</p> | <ul style="list-style-type: none"> We will conserve and enhance the significant areas of open habitat on the National Forest Estate, contributing to species and habitat diversity. | <ul style="list-style-type: none"> Kyle of Sutherland SSSI is being monitored by SNH. |
| <p>To manage the forests sympathetically to the landscape in order to improve their appearance.</p> | <ul style="list-style-type: none"> Implement LMP felling and restocking proposals designed in liaison with the FCS landscape architect. | <ul style="list-style-type: none"> Implementation of the felling and future habitat proposals will be monitored annually through the restock programme and formally at LMP's 5 years review and 10 years revision. |
| | <ul style="list-style-type: none"> Remove wind damaged crops, prioritising highly used tourist routes and areas of ecological importance. | <ul style="list-style-type: none"> Delivery will be monitored through annual work programmes and formally at LMP's 5 years review and 10 years revision. |
| <p>To maintain access to the forests and improve/maintain visitor facilities to ensure positive visitor experience.</p> | <ul style="list-style-type: none"> Maintain the level of public access to the forests within the LMP area by maintaining and/or improving visitor facilities and providing diversions and/or alternative access routes during forest operations. | <ul style="list-style-type: none"> Monitoring of visitor numbers will be carried out by Communities, Recreation and Tourism team (CRT). Maintaining level of public access during forest operations will be monitored through the work plan process, good site management and 75% site visits. |
| | <ul style="list-style-type: none"> Develop the Kyle of Sutherland Mountain Bike Facility as a flagship centre to complement the resources in the Inverness, Ross and Skye District and the Highland Wildcat Trails at Golspie. Continue to improve key visitor zones around high priority recreation sites and along major tourist routes. | <ul style="list-style-type: none"> Progress will be monitored by Communities, Recreation and Tourism team (CRT). Formally it will be reviewed at LMP's 5 years review and 10 years revision. |
| <p>To optimise productive potential of the forests by matching restock species to site conditions; to sustain timber production at a level that supports local economy and wider timber industry; to increase area of productive broadleaves.</p> | <ul style="list-style-type: none"> Use best practice in silviculture to identify productive soils and suitable species and manage these areas accordingly, thinning where climate and soils allow. Restock sites with productive broadleaf species where environmentally and silviculturally appropriate. Apply best silvicultural practice to improve quality and yields of our commercial conifer timber. | <ul style="list-style-type: none"> Implementation of the felling and general future habitat proposals will be monitored annually through the restock programme and formally at LMP's 5 years review and 10 years revision. Detailed restock proposals will be developed post-felling, during the work plan process and 75% site visit and will be monitored annually through restock programme. |
| <p>To support local communities that are currently involved in management of their local forests, be open to working in partnership and encourage and support any new approaches.</p> | <ul style="list-style-type: none"> Contact local Community Councils and local interest groups within the LMP area in order to develop management approach that reflects their aspirations and secures benefits to the local residents and forest users. | <ul style="list-style-type: none"> Contact with Community Councils and local interest groups will be recorded by LMP Forester and monitored formally at LMP's 5 years review and 10 years revision. |

| | | |
|--|---|---|
| <p>To contribute to climate change mitigation measures maintaining sustainable timber production, creating areas of new woodland and facilitating woodfuel and renewable energy production.</p> | <ul style="list-style-type: none"> Diversify age structure and species composition of our forests making use of silvicultural mixtures and disease resistant species to increase resilience to pathogens and climate change. | <ul style="list-style-type: none"> Implementation of the general future habitat proposals will be monitored formally at LMP's 5 years review and 10 years revision. Detailed restock proposals will be developed post-felling, during the workplan process and 75% site visit and will be monitored annually through restock programme. Areas affected by <i>Dothistroma needle blight</i> (DNB) will be monitored annually by Planning team and if needed, felled early to maximise timber recovery. |
| | <ul style="list-style-type: none"> Continue to support the development of local timber and woodfuel businesses and seek out new outlets for small roundwood to help reduce timber miles. | <ul style="list-style-type: none"> The production forecast will be produced by Planning team; volumes might fluctuate as forest health felling and windblow clearance will need to be accommodated. The forecast will be monitored by Programme Manager and Planning Manager. |
| | <ul style="list-style-type: none"> Continue to make the land within the National Forest Estate available to windfarm and hydro scheme development and to work with developers to deliver projects of maximal environmental and economic benefit. | <ul style="list-style-type: none"> The possible change in land use will be monitored by Planning and Estate teams respectively.. |

***75% site visit** is carried out at a point when about 75% of a harvesting coupe is felled and is attended by representatives of District teams (Harvesting, Forest Management, Planning, Environment, CRT, Deer Management and Civil Engineers); at this point restock proposal (as per FDP/LMP) is discussed and decision about future species composition is made. Other site specific issues (e.g. water management, protected species, landscape etc.) are also discussed. Decisions made during 75% site visit are recorded in workplan document.

Supporting documents: Designated Site Planning

Designated sites covered by this document

Caithness and Sutherland Peatlands SPA
 Caithness and Sutherland Peatlands SAC
 Caithness and Sutherland Peatlands RAMSAR
 River Oykel SAC
 Kyle of Sutherland Marshes SSSI
 Grudie Peatlands SSSI

Dates of plan

Start date of plan: 2016
 End date of plan: 2021

The Land Management Plan runs for 10 years; however this Designated Site Planning document will be reviewed at year 5 in line with the mid-term review to ensure that it is still fit for purpose.

Management Aims & Objectives

The aim of this Plan is to fully take into account any management and mitigation required for the designated land on and around the National Forest Estate based on the area covered by the Central Sutherland Land Management Plan.

This plan aims to act as a basis for targeted management for the notified features and to recognise other operations which may affect them through general use and management of the land on the National Forest Estate (NFE).

Section 1 Designated Sites covered by this Land Management Plan

Table 1: Summary of designations relating to this plan

| Designated Site Name | PA Site code | Site Type | Total Area of designated site (ha) | Area in this plan (ha) | % Within this plan | % on NFE |
|---|--------------|-----------|------------------------------------|------------------------|--------------------|----------|
| Caithness and Sutherland Peatlands SPA | 8476 | SPA | 145516.75 | 66.55 | 0.04 | 0.87 |
| Caithness and Sutherland Peatlands SAC | 8218 | SAC | 143538.70 | 66.55 | 0.04 | 0.88 |
| River Oykel SAC | 8363 | SAC | 960.42 | 6.09 | 0.63 | 1.63 |
| Caithness and Sutherland Peatlands RAMSAR | 8412 | RAMSAR | 143502.79 | 66.55 | 0.04 | 0.88 |
| Kyle of Sutherland SSSI | 885 | SSSI | 402.76 | 143.94 | 35.74 | 35.74 |
| Grudie Peatlands SSSI | 750 | SSSI | 4784.67 | 66.55 | 1.34 | 1.34 |

Map 3 (Key Features – Environmental) highlights the location of the above designated sites in relation to the LMP boundary and the NFE management area. The plan also shows the other designated sites in North Sutherland for context.

For further detail on the designations listed in Table 1, refer to the SNH documentation at the SiteLink page at www.snh.gov.uk/SNHi and on the North Highland Forest District electronic filing system (T/Environment/Designations).

The remainder of this plan will refer in detail only to the elements of the above designated sites on NFE that have the potential to be directly affected by our management.

Section 2 Features on/adjacent to the NFE and condition

Only features that exist on NFE within this LMP or have the potential to be directly affected by our management operations are listed in the table below:

Table 2 Features on the NFE within this LMP

| Site Type | Site code | Feature description | SCM Condition (Date assessed) | Condition on NFE | Management Classification (if relevant) |
|--|----------------------------|--|-------------------------------|------------------|---|
| SAC | 8363 | Atlantic salmon (<i>Salmo salar</i>), | Favourable Recovered 2011 | N/A | Forest and Water guidance and The Water Environment (Diffuse Pollution) (Scotland) Regulations 2008 General Binding Rules will be adhered to. |
| | | Freshwater pearl mussel (<i>Margaritifera margaritifera</i>) | Unfavourable Declining 2009 | N/A | |
| SAC | 8218 | Otter (<i>Lutra lutra</i>) | Unfavourable Declining 2011 | N/A | FC Guidance note 35c: Forest operations and otters in Scotland will be adhered to. |
| | | Marsh saxifrage (<i>Saxifraga hirculus</i>) | Favourable Maintained 2007 | N/A | No outstanding remedies |
| | | Blanket bog; | Unfavourable Declining 2010 | N/A | No outstanding remedies |
| | | | Unfavourable Declining 2010 | N/A | No outstanding remedies |
| | | Depressions on peat substrates; | Unfavourable Declining 2010 | N/A | No outstanding remedies |
| Wet heathland with cross-leaved heath; | Favourable Maintained 2010 | N/A | No outstanding remedies | | |
| Very wet mires; Clear-water lakes or lochs | Favourable Maintained 2010 | N/A | No outstanding remedies | | |

| | | | | | |
|------|------|---|-----------------------------|-----|-------------------------|
| SPA | 8476 | Golden plover (<i>Pluvialis apricaria</i>) | Unfavourable Declining 2009 | N/A | No outstanding remedies |
| | | Greenshank (<i>Tiringa nebularia</i>) | Favourable Maintained 2009 | | |
| | | Dudlin (<i>Calidris alpine schinzii</i>) | Favourable Maintained 2009 | | |
| | | Black-throated diver (<i>Gavia arctica</i>) | Unfavourable Declining 2007 | | |
| | | Red-throated diver (<i>Gavia stellata</i>) | Favourable Maintained 2006 | | |
| | | Wood sandpiper (<i>Tringa glareola</i>) | Favourable Maintained 2004 | | |
| | | Golden eagle (<i>Aquila chrysaetos</i>) | Favourable maintained 2003 | | |
| | | Merlin (<i>Falco columbarius</i>) | Favourable maintained 2004 | | |
| | | Hen harrier (<i>Circus cyaneus</i>) | Favourable maintained 2003 | | |
| | | Common scoter (<i>Melanitta nigra</i>) | Favourable maintained 2007 | | |
| SSSI | 885 | Flood-plain fen | Unfavourable No change 2015 | N/A | No outstanding remedies |
| | | Vascular plant assemblage | Favourable Maintained 2015 | N/A | |
| | | Wet woodland | Unfavourable Declining 2013 | N/A | |
| SSSI | 750 | Blanket bog | Favourable Maintained 2002 | N/A | No outstanding remedies |

| | | | | |
|--|--|-----------------------------|-----|--|
| | Dunlin (<i>Calidris alpina schinzii</i>), breeding | Favourable Maintained 2009 | N/A | |
| | Golden plover (<i>Pluvialis apricaria</i>), breeding | Unfavourable Declining 2009 | N/A | |
| | Greenshank (<i>Tringa nebulia</i>), breeding | Favourable Maintained 2009 | N/A | |

Freshwater pearl mussels

River Oykel is among few rivers in Scotland that support large, visible populations of freshwater pearl mussels. Once widely distributed, populations in Europe have sharply declined and Scotland is now considered to be the main European species stronghold. In recent years Scottish population also declined and ceased to breed in many sites. The freshwater pearl mussels can grow to up to 15 cm and live for over 100 years. The adults live attached to or buried in the substrate and filtrate small particles of food from the flowing water. They become mature at about 10-12 years of age and each female can produce between one and four million larvae, that are released in synchrony over one or two days in the summer. Mussel larvae realised to the water must attach themselves to the gills of young salmon or trout in order to develop. Only a small percentage of the larvae will succeed and survive to drop off their fish host and start their sedentary adult life on the riverbed. Their survival is therefore dependant on availability of juvenile salmon and/or trout. The freshwater pearl mussels are also critically dependant on high water quality and suitable river substrates. River Oykel has considerable amount of both adult and juvenile mussels, indicating that the population has the potential to remain viable in the long term. The River Oykel catchment includes extensive tracts of blanket bog, forest of plantation origin (with considerable effort made in recent years to remove non-native conifers away from the banks of the river and its tributaries, and to create riparian woodland comprising native broadleaved trees), and relatively small area of improved agricultural ground (mainly grazing). Throughout its course, the riverbed is highly varied with number of pools, riffles and rapids, which give a mixture of substrate, from boulders to gravel.

Atlantic salmon

River Oykel is designated (among other reasons) for salmon interest. The designation is recorded as being in a 'Favourable Recovered' condition by the most recent SCM in 2011. River Borgie is managed as a sporting fishery for Atlantic salmon. This includes limited engineering works in the river channel as repairs and maintenance of existing weirs and bank stabilisation works. The bank vegetation is managed to allow access for fishing and improve productivity. River Borgie is stocked with native juvenile salmon.

Dunlin, golden plover and greenshank

All above mentioned species have been recorded on Grudie Peatlands at breeding densities well above the average for the peatlands of Caithness and Sutherland. Each species is a notified feature.

Blanket bog

Grudie Peatlands SSSI contains number of different blanket bog types, including valleyside, terrace and saddle mires. These various bog types have developed on summits, slopes and in hollow and combine to form an extensive peatland habitat. Bog pools and small lochans are also present. The site is notable for the relative abundance of the nationally scarce dwarf birch (*Betula nana*) and a diverse range of less common bog sphagnum species (e.g. golden bog-moss (*Sphagnum pulchrum*), rusty bog-moss (*Sphagnum fuscum*), imbricate bog-moss (*Sphagnum imbricatum*), and magellanic bog-moss (*Sphagnum magellanicum*). Dominant species are deer sedge, heather, hare's-tail cotton grass, and cross-leaved heath. *Cladonia* lichens are more frequent in areas affected by drainage and burning.

Flood-plain fen

The floodplain terraces on Kyle of Sutherland Marshes SSSI are regularly flooded in winter, and are a best example of floodplain habitat in Sutherland. There are extensive areas of wet marshy grassland with some drier areas on the river banks, old embankments and other better drained ground. The main species are bottle sedge (*Carex rostrata*), common sedge (*Carex nigra*), marsh cinquefoil (*Potentilla palustris*), water horsetail (*Equisetum fluviatile*), and marsh pennywort (*Hydrocotyle vulgaris*). Some of the areas of fern form quaking mires with transition to open water. The wettest areas grade into stands of water sedge (*Carex aquatilis*) and estuarine sedge (*Carex recta*). Drier areas have a typical grazed acid grassland flora, with red fescue (*Festuca rubra*) and mat grass (*Nardus stricta*).

Wet woodland

Kyle of Sutherland SSSI includes blocks of wet woodland dominated by a canopy of alder (*Alnus glutinosa*) on the floodplain, grading into birch woodland on neighbouring drier slopes. The alder woodland has an understory with scattered hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*), and guelder-rose (*Viburnum opulus*). The ground flora consists of ferns, grasses, sedges and flowering herbs (lady fern, creeping soft-grass etc.). Fen vegetation can extend beneath the tree canopy and there is gradual transition from flood-plain fen (open fen and wet grassland) to wet woodland habitats throughout the site.

Vascular plant assemblages (flowering plants)

The Kyle of Sutherland Marshes SSSI supports nationally important assemblages of plant species; a large population of nationally rare estuarine sedge (*Carex recta*) and two scarce species: bog orchid (*Hammarbya palludosa*) and pillwort (*Paluria globulifera*) are all present on this site.

Section 3 Pressures and proposed actions

Table 3 Pressures and proposed actions

| Site Type | Feature description | Pressures | Proposed action | Timescale | Location Map highlighting work & other key limiting factors |
|-----------|--|---------------------------|---|---|---|
| SSSI | Blanket bog Breeding populations of Dunlin (<i>Calidris alpina schinzii</i>); Golden plover (<i>Pluvialis apricaria</i>) and Greenshank (<i>Tringa nebularia</i>) | Trampling/overgrazing | Deer will be managed under contact (East Sutherland Deer Management Group's deer management plan currently under review). Forest restructuring proposal takes into account the effect the plantation type forestry has on the water table on the adjacent non-planted blanket bog and the draft guidance for managing forest edge effect on the notified breeding birds feature. To relieve the negative effect on water table on adjoining Designated Sites and undesignated active bog sites, FES is committed to forest restructuring under approved LMP, moving forest edge back by agreed distances, to be determined on a site a site basis. Edge effect is considered by SNH and RSPB as the main forestry pressure on the breeding bird populations feature within Grudie Peatlands SSSI. Due to the different requirements for each species, and as a result of previously approved felling and restocking operations, the forest edge will be taken away from the open bog habitat (that particular operation will happen outwith the Central Sutherland LMP approval period). In places the native and/or riparian woodland buffer will be created between the productive forestry and open habitat. | Throughout the life of the Land Management Plan as and when required. | The proposed works are detailed in the Management Coupes and Future Habitats Maps, appended to this plan. |
| | | Forestry operations | | | |
| | | Game/Fisheries management | Deer management will be undertaken to FES best practice standards to protect tree crops and maintain the quality and structure of open habitats. The area of riparian woodland will increase significantly allowing for better protection of the aquatic environment from any potential negative impact of forest operations. | Throughout the life of the Land Management Plan. | Not mapped |
| | | Plant pests and diseases | Crops will continue to be surveyed for Dothistroma needle blight infection. | Throughout the life of the Land Management Plan. | Not mapped |
| | | Energy production | Management of sites leased to wind farm developers/operators will be covered by Habitat Management Plans, agreed with SNH. | Through the life the Land Management Plan and outwith the Plan period | The area that might be leased to wind farm developers (subject to successful planning application) is marked on Analysis and concept map. |
| SAC | Atlantic salmon (<i>Salmo salar</i>) | Diffuse pollution | All operations will be conducted within best practice UKFS and UKWAS standards and we will comply with 'Operations in FWPM Catchments' guidance. | Throughout the life of the Land Management Plan as and when required. | The proposed works are detailed in the Management Coupes and Future Habitats Maps, appended to this plan. |

| | | | | | |
|-----|---|---------------------------|---|---|---|
| SAC | | Forestry operations | All operations will be conducted using best practise and adhering to Forest and Water Guidance. Fragments of riparian woodland were planted with the aim to improve the condition of neighbouring SAC site and to limit the impact of future forest operations on the aquatic environment. We will continue with the programme of river restoration, removing barriers to migratory fish. | Throughout the life of the Land Management Plan as and when required. | The proposed works are detailed in the Management Coupes and Future Habitats Maps, appended to this plan. |
| | Freshwater pearl mussels (<i>Margaritifera margaritifera</i>) | Forestry operations | All operations will be conducted using best practise and adhering to Forest and Water Guidance. Fragments of riparian woodland were planted with the aim to improve the condition of neighbouring SAC site and to limit the impact of future forest operations on the aquatic environment. We will continue with the programme of river restoration, removing barriers to migratory fish. | Throughout the life of the Land Management Plan as and when required. | The proposed works are detailed in the Management Coupes and Future Habitats Maps, appended to this plan. |
| | | Diffuse pollution | All operations will be conducted within best practice UKFS and UKWAS standards and we will comply with 'Operations in FWPM Catchments' guidance. | Throughout the life of the Land Management Plan as and when required. | The proposed works are detailed in the Management Coupes and Future Habitats Maps, appended to this plan. |
| | Otter (<i>Lutra lutra</i>) | Forestry operations | Sites will be surveyed for the presence of otter prior to commencement of forest operations. All operations will adhere to FC Guidance note 35c: forest operations and otters in Scotland. | Throughout the life of the Land Management Plan as and when required | The proposed works are detailed in the Management Coupes and Future Habitats Maps, appended to this plan. |
| SPA | Breeding birds | Forestry operations | Edge effect is considered (by SNH and RSPB) the main forestry operation pressure on the birds breeding on Caithness and Sutherland Peatlands SPA. Due to the wide range of bird species that make up the notified breeding bird populations and the different requirements for each species, and that the relationship between forest edge and each of these breeding bird species is not fully understood, the forest edge, where identified appropriate, will be withdrawn back from the designated feature under an approved LMP by an agreed distance to be determined on a site by site basis using developing best practice. Suitable transitional woodland will be allowed to develop where appropriate and agreed under approved LMP between the open buffer zones and the productive forest edge, softening crop edges and creating habitat for some of the species listed under the breeding bird populations feature. This transitional woodland will aim to create open wet bog woodland. | Throughout the life of the Land Management Plan as and when required. | The proposed works are detailed in the Management Coupes and Future Habitats Maps, appended to this plan. |
| | | Game/Fisheries management | Deer management will be undertaken to FES best practice standards to protect tree crops and maintain the quality and structure of open habitats. | Throughout the life of the Land Management Plan | Not mapped. |

Section 4 Operations within the Land Management Plan that could impact on the Designated features on the NFE

Table 4 Operations within the LMP that could impact on features on the NFE

| Operation Type | Detailed description of operation and method | Mitigation measures to be applied | Timing | Map reference & other relevant comments |
|---|---|---|--|---|
| Controlled burning of fen meadow on Kyle of Sutherland Marshes SSSI | Burning to remove large amounts of vegetation material, including the build-up of dead grass litter, which is crucial to help maintain biodiversity of the sward. | Operations to follow Muirburn Code guidelines. Initially small areas to be burned on a 5 year rotation, moving into 3-year rotation once the habitats are actively being managed; burning to be carried out on late winter/early spring day with suitable weather, away from rare plant interests and any dry deep peat. Wide fire breaks to be cut prior to burning. | Late winter/ early spring, on a 3 to 5 years rotation, through the life of this Land Management Plan | Map 3 – Environmental features - for location of the Kyle of Sutherland Marshes SSSI. |

Section 5 Operations on the National Forest Estate within the Land Management Plan that could impact on Designated Sites adjacent to the NFE

Table 5: Operations that could impact on Designated Sites adjacent to the NFE

| Operation Type / Aspect of forest | Detailed description of issue or operation | Proposed action &/or mitigation | Timing | Map reference & other relevant comments |
|--|--|---|---|---|
| Clearfell of 4 coupes (Linside, Inveroykel and Rhelonie) adjacent to Kyle of Sutherland Marshes SSSI | Standard mechanical felling of trees by harvester and transport to roadside by forwarder for onwards transport by lorry. | All work will be risk assessed by the FD Environment Team through the work plan and business plan processes. Water protection measures will be rigorously enforced and UKFS Forest and Water Guidelines will be followed. FC Guidance Note 32 will be adhered to. | Through the life of this Land Management Plan | Management Coupes maps. (Coupes 14, 24, 39 and 40 Felling on Map 7 - felling and road construction) |
| Clearfell of 1 coupe (Rosehall) adjacent to River Oykel SAC | Standard mechanical felling of trees by harvester and transport to roadside by forwarder for onwards transport by lorry. | All work will be risk assessed by the FD Environment Team through the work plan and business plan processes. Water protection measures will be rigorously enforced and UKFS Forest and Water Guidelines will be followed. FC Guidance Note 32 will be adhered to. | Through the life of this Land Management Plan | Management Coupes maps. (Coupe 34 Felling on Map 7 felling and road construction) |
| Restocking of 1 coupe (Rosehall) adjacent top River Oykel SAC | Standard mechanical (by digger) and/or manual ground preparation, manual tree planting. | All work will be risk assessed by the FD Environment Team through the work plan and business plan processes. Water protection measures will be rigorously enforced and UKFS Forest and Water Guidelines will be followed. We will comply with 'Operations in FWPM Catchments' guidance. | Through the life of this Land Management Plan | Management Coupes maps (Coupe 6 Restock on Map 7 restocking) |

Section 6 Appropriate Assessment/s undertaken on work contained within the LMP

Appropriate Assessment for this Land Management Plan in relation to the River Oykel SAC, Caithness and Sutherland Peatlands SPA, SAC & RAMSAR are attached. FES will continue to consult with the FCS Species Ecologist, FWPM Steering Group Project Officer and SNH on any proposed changes to the LMP as per the tolerance table included, and a further Appropriate Assessment will be undertaken if required.

Section 7 Approvals, agreements & signatures

I confirm that the above management plan which covers the sections of Designated Sites shown in Table 1 of this Designated Site Planning Document in the Land Management Plan for Central Sutherland contains the necessary detail, content and mitigation measures to comply with the statutory requirements contained within the Nature Conservation (Scotland) Act 2004 and in particular in relation to Part 2, Chapter 1, Section 14 (e), which covers consents via an agreed management plan (i.e. "SNH's consent under section 13 is not required in relation to carrying out an operation of the type described in subsection (1) of that section –(e) in accordance with any plan relating to the management of land which has been prepared by the public body...and approved in writing by SNH.

SNH Signature **Date**

SNH Name

SNH Job Title

Address.....

Email

Contact telephone number

FCS has a corporate requirement under UKWAS (2nd edition) and under the FCS Framework Document for FES (2010) to manage all designated sites in accordance with plans approved by the statutory authority, I therefore sign below to approve the contents of this plan in relation to the Designated Sites listed in Table 1 of this Designated Site Planning Document that fall within its boundary on the NFE.

FCS Signature **Date**

FCS Name



Monument Management Plan

North Highland Forest District 2015

Vision

We are committed to undertaking conservation management, condition monitoring and archaeological recording at our significant historic assets; and to helping to develop, share and promote best-practice historic environment conservation management. We are proud to support *Our Place in Time: the Historic Environment Strategy for Scotland* and the emerging *Scottish Archaeology Strategy*; and often seek to contribute to the Scottish Archaeological Research Framework.

General background

The key **UK Forestry Standard (UKFS) good forestry practice requirement** in relation to the protection and conservation of scheduled monuments within our planning framework is that “[1] *Scheduled Monuments must not be damaged and consent must be obtained from the relevant historic environment authority for any works that have the potential to damage the monument*”. The key **UKFS good forestry practice requirement** in relation to the management of the historic environment within our planning framework is that “[4] *Forest management plans and operational plans should set out how important historic environment features, including veteran trees, are to be protected and managed*” (UKFS 2011, 13).

The key **UKFS good forestry practice guidelines** in relation to the conservation of the historic environment within our planning framework are that we should “[18] *Aim to maintain the open settings for features of historical interest; where appropriate monitor changes in vegetation and consider using grazing or mowing [cutting or flailing] as part of the management plan*”; and “[19] *Manage public access so that open settings for [relevant] historic features are not subject to erosion or damage caused by visitor pressure*” (UKFS 2011, 22).

Monument Management Plan

The **Strategic Directions for Scotland's national forest estate** set out our priorities in terms of integrated land management. The key priorities for the historic environment state that *"we safeguard archaeological sites through our planning and management and recognise special places and features with local cultural meaning"* and that:

- *"we will continue to undertake conservation management, condition monitoring and archaeological recording at significant historic assets; and*
- *that we will continue to work with stakeholders to develop, share and promote best-practice historic environment conservation management"* (FCS 2013, 52).

Forest District Planning and Environment teams will ensure that details of our significant historic assets are included within Forest Design Plans and Land Management Plans. Historic environment features are identified and **protected** within our Work Plans and that damage is avoided during forestry operations; and relevant designated historic assets (and significant undesignated historic assets) are actively managed within a programme of detailed archaeological recording and **conservation** management. Where appropriate, significant historic assets are **presented** to the public as part of the Forest District recreational framework (with interpretation panels and access paths).

Significant archaeological sites will be protected and managed following the UKFS *Forests and historic environment* guidelines (2011), the FCS policy document *Scotland's Woodlands and the Historic Environment* (2008) and the supporting *FES Historic Environment Planning Guidelines* (available from the FCS Archaeologist). Harvesting coupes, access roads and fence lines will be surveyed by Forest District staff prior to any work being undertaken in order to ensure that upstanding historic environment features can be marked and avoided. At restocking, work prescriptions remove relevant historic environment features from ground disturbing operations and replanting. Opportunities to enhance the setting of important sites will be considered on a case-by-case basis (such as the views to and from a significant designated site).

Monument Management Plan

Scottish Historic Environment Policy Chapter 5 'The Conservation of the Historic Environment by Government Bodies in Scotland'

Designated Historic Assets Register

The implementation of SHEP5 requires the establishment of an **inventory of historic assets**ⁱ. The **Designated Historic Assets Register** contains information regarding all of the designated historic sites on Scotland's national forest estate. It includes sites from:

- **Scheduled Monuments** and **Listed Buildings** (individual designated features with **Monument Management Plans** and **Condition Surveys** respectively);
- the ***Inventory of Gardens and Designed Landscapes in Scotland***;
- the ***Inventory of Historic Battlefields*** (both non-statutory designations best considered by the relevant strategic plan); and also
- significant undesignated historic assets.

We also undertake a programme of detailed archaeological measured survey of our most significant sites in order to enhance the national historic environment record and inform conservation management.

Forester GIS Heritage Module

The implementation of SHEP5 also required the establishment of a comprehensive GIS based national historic environment inventory for the national forest estateⁱⁱ. The FCS Archaeologist has the overall responsibility for the maintenance and update of the national forest estate **Forester GIS Heritage Module** geodatabase (as *system owner*); Forest District Environment Teams have responsibility for use (as *data owners*).

Any recent archaeological surveys that have been undertaken on behalf of FCS have been incorporated into the Heritage Module geodatabase - and any new archaeological surveys required (in unimproved upland areas for example, or areas within which the archaeological record is unusually rich) will be undertaken to the standards laid out in *FES Historic Environment Planning Guidelines*. This will ensure that undiscovered historic environment features are mapped and recorded prior to forestry establishment and management operations - and will ensure the continued comprehensive protection of the known archaeological resource.

Monument Management Plan

Forest District Monument Management Plans

The implementation of SHEP5 also requires an ongoing programme of conservation management, condition monitoring and archaeological recording at relevant significant designated assetsⁱⁱⁱ. The annual **Forest District Monument Management Plan** identifies and records any major conservation works, significant condition monitoring programmes and archaeological measured surveys undertaken. The FD MMP is a collaborative document, referencing our **Forest District Strategic Plans** and Historic Scotland Field Officer reports and condition scores.

The annual **Forest District Monument Management Plan** replaces individual MMPs, enabling a better overview and providing a more dynamic planning document of FD priorities.

Monument Management Plan

North Highland FD MMP 2015

North Highland Forest District has a significant role to play in delivering the protection, conservation and presentation of the historic environment on Scotland's national forest estate.

Extract from Forest District Strategic Plan

"The North Highlands is a special place. Today, the Flow Country of Caithness and Sutherland (a candidate for World Heritage Site status), the Assynt Geopark and the many Natura 2000 sites around our coastlines are recognised internationally. Through our land management planning, we will continue to identify where our resources can best be used to restore damaged habitats, protect our existing heritage sites and contribute to species conservation" (2014, 32).

The **District Specific Actions** set out below reflect the wide range of our activity, including stakeholder involvement, protection mechanisms and specific site-based commitments.

| National Key Commitment (Cared for) | District Specific Action |
|--|--|
| We will safeguard archaeological sites through our planning and management, and recognise special places and features with local cultural meaning | We will review our significant holding of archaeology during land management planning reviews, and create proposals that enhance high priority sites and develop viewing opportunities, thus building on our work with community-based interest groups. We will continue to survey the National Forest Estate to identify and protect significant new heritage sites. |

Monument Management Plan

Major Monument Actions

The main objective of historic environment conservation management is to ensure the stable condition of the relevant monuments. In general terms, their condition is monitored by Historic Scotland's Field Officers, who record condition (1-5, good - poor), risk (1-5, low – high) and priority (a score of over 5 has been used to indicate a monument with significant issues) and management recommendations proposed. All intrusive scrub vegetation and tree regeneration will be removed. If required, clearance will occur at least once every year and will be undertaken by FCS Forest District staff or contractors. All scrub vegetation and naturally regenerating trees within the relevant scheduled area will be cut off at ground level using appropriate hand or power tools and removed. Any seedlings will be removed by pulling out by hand. Bracken encroachment shall be controlled within appropriate areas as necessary on an annual basis through strimming and / or chemical spraying, as appropriate. Any harvesting work will be planned and organised to avoid any damage to the relevant monuments in the course of any harvesting and timber extraction. No replanting will take place within any scheduled areas. Major monument action (and associated survey and / or special condition monitoring) is recorded below. Scheduled Monument Consent will be necessary in regard to any works that may cause damage or disturbance within the scheduled area.

| Scheduled Monument | NGR | Monument Name (those in bold are / will be highlighted in their respective Land Management Plan) | Major Management Action (year action due) and / or general comments / AMS (Archaeological Measured Survey) | Date of last Historic Scotland FO visit | Condition | Risk | Priority |
|--------------------|----------|--|--|---|-----------|------|----------|
| 426 | ND047607 | Bridge of Broubster, standing stones 1350m NE of | | 12/05/2009 | 1 | 1 | 1.41 |
| 440 | ND072592 | Carriside, chambered cairn 350m NW of | | 24/08/2009 | 1 | 1 | 1.41 |
| 550 | ND205374 | Golsary, broch on W bank of Burn of Golsary, Rumster Forest | | 07/09/2010 | 2 | 2 | 2.83 |
| 573 | ND212372 | Rumster, broch 200m WSW of, Forse | | 07/09/2010 | 1 | 1 | 1.41 |
| 591 | ND279424 | Toftgun, broch 365m SSE of, Loch of Camster | | 12/11/2009 | 1 | 1 | 1.41 |
| 1672 | NH505585 | Knock Farril hillfort | AMS (2011); new interpretation (2015) | 15/04/2008 | 2 | 1 | 2.24 |
| 1758 | NC567026 | Achany, cairn 890m NW of | | 05/05/2009 | 2 | 2 | 2.83 |
| 1779 | NC679390 | Clach an Righ, stone circle 400m NNW of Dalharrold | | 29/09/2004 | 1 | 1 | 1.41 |

Monument Management Plan

| | | | | | | | |
|------|----------|--|---|------------|---|---|------|
| 1784 | NC557027 | Druim Baile Fuir, stone circle, cairns, hut circles and enclosure | | 11/04/2007 | 4 | 1 | 4.12 |
| 1812 | NC574055 | The Ord , chambered cairns, cairns, settlements and field systems | AMS (2010); [1] Upgrade access path (this is an aspiration and will need Scheduled Monument Consent). | 08/02/2012 | 2 | 1 | 2.24 |
| 1829 | NC591103 | Altbreck , broch 1650m ESE of Dalchork Bridge | AMS (2013); [1] fence area [2] provide conservation grazing [3] monitor impact with fixed point photography. | 11/02/2010 | 2 | 2 | 2.83 |
| 1885 | NH782944 | Skelbo Wood , broch 300m SW of Glen Cottage | [1] Archaeological record (2012) [1] fence area [2] provide conservation grazing [3] monitor impact with fixed point photography. | 14/09/2006 | 3 | 4 | 5 |
| 2395 | NH727834 | Red Burn, chambered cairn 500m S of Redburn Cottage | | 09/03/2010 | 2 | 1 | 2.24 |
| 2510 | NC689416 | Rosal , deserted township | ALS (2014); [1] fence area [2] provide conservation grazing [3] provide new interpretation (2015) | 10/11/2009 | 2 | 1 | 2.24 |
| 2511 | NC701360 | Bad an Leathaid, deserted township | | 24/08/2004 | 2 | 1 | 2.24 |
| 2512 | NC702346 | Truderscraig, deserted township, hut circles & clearance cairns | | 10/11/2009 | 2 | 1 | 2.24 |
| 2513 | NC688348 | Cnoc na h'Iolaire, hut circles & clearance cairns | | 27/10/2005 | 3 | 3 | 4.24 |
| 2514 | NC687370 | Cnoc na Gamhna, hut circles, burnt mound & clearance cairns | [1] Archaeological survey and mark out [2] careful harvesting of standing timber | 29/04/2008 | 4 | 2 | 4.47 |
| 2515 | NC683407 | Rosal, hut circles | Careful harvesting of standing timber and removal of brash and windblow | 18/09/2009 | 3 | 2 | 3.61 |
| 2517 | NC689392 | Meall a Choire Bhuidhe, hut circles | Careful harvesting of standing timber and removal of brash and windblow | 06/03/2008 | 5 | 4 | 6.4 |
| 2518 | NC686357 | Allt a'Bhealaich, hut circles | | 10/11/2009 | 3 | 2 | 3.61 |
| 2519 | NC696334 | Cnoc Airigh an Leathaid, hut circles | | 27/10/2005 | 5 | 4 | 6.4 |
| 2520 | NC718345 | Leathad an Daraich, hut circles | | 18/09/2009 | 3 | 2 | 3.61 |
| 2521 | NC673417 | Allt Ceann na Coille, hut circles & field clearance cairns | Careful harvesting of standing timber and removal of brash and windblow | 26/03/2009 | 4 | 4 | 5.66 |

Monument Management Plan

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|------|----------|---|------------------------------------|------------|---|---|------|
| 2522 | NC685398 | Blar na Fola & Breac Dubh, hut circles | | 18/09/2009 | 3 | 2 | 3.61 |
| 2720 | NH396628 | Little Garve Bridge | Major masonry consolidation (2007) | 15/02/2006 | 5 | 5 | 7.07 |
| 2914 | NH721767 | Scotsburn Wood, chambered cairn 550m NNE of Scotsburn House | | 30/03/2010 | 2 | 1 | 2.24 |
| 2915 | NH726768 | Scotsburn Wood, chambered cairn 820m NE of Scotsburn House | | 30/03/2010 | 2 | 1 | 2.24 |
| 2916 | NH728767 | Scotsburn Wood, cairn 910m ENE of Scotsburn House | | 30/11/2005 | 3 | 2 | 3.61 |
| 3129 | NH747780 | Lamington Park, long cairn 950m E of Lochan a'Chlaidheimh | | 05/03/2008 | 2 | 1 | 2.24 |
| 4022 | NC303079 | Cnoc Chaornaidh, chambered cairn 570m SW of | | 23/03/2010 | 2 | 2 | 2.83 |
| 4023 | NC301081 | Cnoc Chaornaidh, chambered cairn 560m WSW of | | 23/03/2010 | 2 | 2 | 2.83 |
| 4025 | NC302101 | Strathseasgaich, burnt mound 500m SW of | | 23/03/2010 | 1 | 1 | 1.41 |
| 4042 | NC301091 | Cnoc Chaornaidh, cairn 930m NW of | | 30/07/2008 | 2 | 2 | 2.83 |
| 4043 | NC311097 | Loch Ailsh, chambered cairn 900m SE of Strathseasgaich | | 23/03/2010 | 1 | 1 | 1.41 |
| 4044 | NC300102 | Strathseasgaich, chambered cairn 700m SW of | | 23/03/2010 | 1 | 1 | 1.41 |
| 4045 | NC298084 | Cnoc Chaornaidh, chambered cairn 180m NNE of, Stratheskie | | 23/03/2010 | 2 | 2 | 2.83 |
| 4046 | NC313079 | Allt Eileag, chambered cairn 800m SE of Cnoc Chaornaidh | | 30/07/2008 | 2 | 2 | 2.83 |
| 4054 | NC290094 | Aultivullin, cairn 650m SE of | | 30/07/2008 | 2 | 2 | 2.83 |
| 4505 | NH681942 | Creagan Reamhan, farmstead, kiln and fields 300m SSW of | | 28/03/2008 | 1 | 1 | 1.41 |

Monument Management Plan

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|------|----------|--|--|------------|---|---|------|
| 4560 | NC608112 | Meall Meadhonach, hut circles, field system and shielings 750m SW of | | 20/08/2008 | 2 | 2 | 2.83 |
| 4563 | NC619145 | Dalnessie, settlement N of Feith Osdail | | 22/08/2008 | 2 | 1 | 2.24 |
| 4564 | NC314091 | Cnoc Chaornaidh, chambered cairn, cairn and long mound E of | | 30/07/2008 | 3 | 2 | 3.61 |
| 4569 | NC622096 | Loch Tigh na Creige, house 200m N of E end of | | 11/02/2010 | 2 | 2 | 2.83 |
| 4727 | NH716804 | Carn a Chait cairn | | 30/03/2010 | 2 | 1 | 2.24 |
| 4743 | NH731786 | Provost's Well, hut circles and field system 150m NW of | | 05/03/2008 | 2 | 1 | 2.24 |
| 4750 | NH656722 | Carn na Croiche chambered cairn | | 11/05/2009 | 3 | 2 | 3.61 |
| 4752 | NH730798 | Carn Liath long cairn | | 05/03/2008 | 1 | 1 | 1.41 |
| 4760 | NH728784 | Provost's Well, homestead and enclosure 550m WSW of | | 05/03/2008 | 2 | 1 | 2.24 |
| 4763 | NH734834 | Redburn Cottage, long cairn 880m SE of | | 30/11/2005 | 3 | 2 | 3.61 |
| 5078 | NC614099 | Loch Tigh na Crieg, farmstead 600m NNE of NW end of | | 11/02/2010 | 2 | 2 | 2.83 |
| 5081 | NC597149 | Loch Beag na Furalachd, cairn and shielings 1175m ESE of SW end | | 20/08/2008 | 1 | 1 | 1.41 |
| 5084 | NC623139 | Achadh nan Eun, shieling 1400m N of | | 20/08/2008 | 1 | 1 | 1.41 |
| 5090 | NC615103 | Creagan Tigh na Creige, shielings 600m W of | | 22/02/2010 | 1 | 1 | 1.41 |
| 5093 | NC619124 | Meall Meadhonach, settlement and shielings 900m N of | | 20/08/2008 | 1 | 1 | 1.41 |
| 5153 | NC603093 | Loch Tigh na Creige, settlement 650m W of W end of loch | | 11/02/2010 | 3 | 2 | 3.61 |
| 5154 | NC625124 | Achadh nan Eun, shielings | | 22/02/2010 | 2 | 2 | 2.83 |

Monument Management Plan

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|------|----------|--|------------|---|---|------|
| 5159 | NC602146 | Loch Beag na Fuaralachd, shielings 1000m SW of SW end of | 22/08/2008 | 1 | 1 | 1.41 |
| 5160 | NC618096 | Loch Tigh na Creige, sheepfold 300m NW of NE corner of | 11/02/2010 | 2 | 1 | 2.24 |
| 5161 | NC604124 | Meall Meadhonach, sheepfold 1550m NW of | 22/08/2008 | 2 | 1 | 2.24 |
| 5162 | NC624097 | Tighcreag, hut circle 500m WSW of | 11/02/2010 | 3 | 2 | 3.61 |
| 5194 | NC607120 | Meall Meadhonach, hut circle and field system 1200m WNW of | 22/02/2010 | 2 | 1 | 2.24 |
| 5299 | ND058593 | Lorg an Fhamhair, footprint carving | 16/03/2010 | 1 | 1 | 1.41 |
| 5300 | NC589138 | Cnoc a' Bhreac-leathaid, shielings and cairnfield 700m NNE of | 22/02/2010 | 2 | 2 | 2.83 |
| 5301 | ND176492 | Halsary, standing stones 450m WNW of and 620m NW of | 24/08/2009 | 1 | 1 | 1.41 |
| 5305 | ND073593 | Carrside, hut circle 350m N of | 24/08/2009 | 1 | 1 | 1.41 |
| 5306 | ND048607 | Bridge of Broubster, limekilns 1450m ENE of | 12/05/2009 | 1 | 1 | 1.41 |
| 5309 | NC618097 | Loch Tigh Na Creige, hut circle 350m N of NE corner | 11/02/2010 | 2 | 1 | 2.24 |
| 5401 | NC600149 | Loch Beag na Fuaralachd, prehistoric settlement 950m SW of SW end of | 22/08/2008 | 1 | 1 | 1.41 |
| 5406 | ND067593 | Carrside, cairns 750m NW of | 24/08/2009 | 2 | 1 | 2.24 |
| 5462 | NH580980 | Invershin Primary School, settlement 760m NE of and 750m ENE of | 05/05/2009 | 3 | 2 | 3.61 |
| 5470 | NH586966 | Invershin Farm, settlement and burnt mound 1200m E of | 05/05/2009 | 2 | 2 | 2.83 |
| 5483 | NH761932 | Carn an Fheidh long cairn | 29/04/2009 | 1 | 1 | 1.41 |

Monument Management Plan

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|-------|----------|--|---|------------|---|---|------|
| 5484 | NH786942 | Glen Cottage, long cairn 520m SE of | | 28/03/2008 | 2 | 2 | 2.83 |
| 5493 | NH771897 | Davochfin, chambered cairn 700m NNW of | | 24/04/2009 | 2 | 2 | 2.83 |
| 5497 | NH579965 | Invershin Farm, settlement and burnt mound 500m E of | | 05/05/2009 | 2 | 1 | 2.24 |
| 5498 | NH579977 | Invershin Primary School, settlement 600m E of | | 05/05/2009 | 3 | 2 | 3.61 |
| 5563 | NC592102 | Altbreck , homestead 1800m ESE of Dalchork Bridge | AMS (2012) [1] fence area [2] provide conservation grazing [3] monitor impact with fixed point photography. | 11/02/2010 | 2 | 1 | 2.24 |
| 5564 | NC699438 | Dalvina Lodge, hut circles 320m SE and 450m SE of | | 09/04/2010 | 2 | 2 | 2.83 |
| 5565 | NC698428 | Dalvina Lodge, settlements 700m SSE of and 1050m S of | | 09/04/2010 | 3 | 1 | 3.16 |
| 5573 | NH772926 | Proncy, hut circle 330m NNE of | | 18/03/2008 | 1 | 1 | 1.41 |
| 5627 | NC693428 | Dalvina Lodge, hut circle and field system 1130m SSW of | | 09/04/2010 | 1 | 1 | 1.41 |
| 5628 | NC697426 | Dalvina Lodge, hut circle 1300m S of | | 09/04/2010 | 1 | 1 | 1.41 |
| 5663 | NC665509 | Cracknie , souterrain and settlement | AMS (2012) | 09/04/2010 | 1 | 1 | 1.41 |
| 5799 | ND285409 | Toftgun, cairn and shieling 1950m SSE of | | 12/11/2009 | 1 | 1 | 1.41 |
| 5898 | NH771892 | Camore Wood settlement | AMS (2012) [1] consider conservation grazing [2] monitor impact with fixed point photography | 29/04/2009 | 3 | 3 | 4.24 |
| 10942 | NH685867 | Creag an Fhithich, fort, Dounie Wood | AMS (2013) | 09/03/2010 | 2 | 2 | 2.83 |
| 11056 | NH411566 | Carn na Buaile, fort 750m NNW of Comrie, Contin | | 15/04/2009 | 2 | 2 | 2.83 |

Monument Management Plan

Listed Buildings

| HB Number | Grid Ref | Designation | LB Name | Comments |
|-----------|----------|-------------|---------------------------------------|--|
| 52317 | NH688744 | A | Inchindown Underground Fuel Reservoir | Underground and unused; managed decay. |

ⁱ [5.11] Organisations must be aware of the designated historic assets in their estate and should either establish and maintain an inventory of assets, or ensure that their existing property/asset management systems take account of historic aspects. Such assets might include: a building or group of buildings; part of a building (eg a retained façade); an individual archaeological site or monument or a group of them. Priority in all activities should be given to designated assets (scheduled monuments; listed buildings; conservation areas; gardens and designed landscapes or battlefields on non-statutory Inventories (see Chapter 2)). This record should where possible incorporate a statement of the asset's significance based on available information.

ⁱⁱ [5.12] Historic assets that are not scheduled, listed or on non-statutory Inventories – particularly archaeological features – may be material considerations in the planning system or require mitigation in advance of development and bodies should normally also record the location and, if known, the extent of such assets. These basic data are available from RCAHMS and from local Historic Environment Records.

ⁱⁱⁱ [5.15] A fundamental requirement of the SHEP is to maintain a system of regular condition surveys for designated assets (no more than 5 years apart), appropriate to the sort of historic asset - buildings will require a very different approach from, for instance, archaeological earthworks. Such a survey cycle should not replace any more intensive programme of inspection, for example for health and safety reasons such as to ensure that stonework is stable. These reports should identify and prioritise necessary repair and major maintenance requirements.

| REQUEST FOR DETERMINATION UNDER THE E.I.A. (FORESTRY) (SCOTLAND) REGULATIONS 1999 | |
|---|---|
| OPERATION | New Planting (please see Map 8 - New Planting for detail) |
| LOCATION | Woodburn Farm |
| GRID REFERENCE | NC 5191 0107 |
| IS THE LOCATION OF THE PROPOSED WORKS WITHIN A "SENSITIVE AREA", AS DEFINED IN THE REGULATIONS? IF SO, WHAT TYPE OF SENSITIVE AREA? | No |
| IF OPERATION IS AFFORESTATION, DEFORESTATION OR FOREST QUARRIES, WHAT AREA IS INVOLVED? | 30.68 ha |
| IF OPERATION IS FOREST ROADS, TRACKS OR PATHS, WHAT IS SPECIFICATION AND WHAT LENGTH & WIDTH IS INVOLVED? | N/A |
| IS THE PROPOSED OPERATION IMMEDIATELY ADJACENT TO AN AREA OF THE SAME PROJECT TYPE WHICH HAS BEEN COMPLETED SINCE 6TH SEPT.1999? IF SO, GIVE DETAILS. | No |
| PROPOSED TIMING | New planting - 2017 to 2019 |
| STATE ANY PERCEIVED IMPACT ON THE FOLLOWING: | |
| ARCHAEOLOGY | No impact is anticipated. Full archaeological survey was carried out in May 2015 and the survey report is appended to the Central Sutherland LMP proposal - please see Appendix archaeology will be identified by workplan process and walk over survey prior to commencement. |
| CONSERVATION | Positive impact is anticipated, with an overall increase of afforested area and increased carbon sequestration . Increase in area of riparian woodland will have positive impact on water quality. |
| LANDSCAPE | The area is nor prominent in the landscape. Positive impact anticipated from new planting , as the proposed planting will link existing woodland areas and will simplify forest/field margin. |
| WATER | Positive impact anticipated due to creation of riparian woodland |
| RECREATION / ACCESS | No impact |
| PEOPLE | No negative impact anticipated. The possible impact on local community was assessed prior to the land purchase. The proposal was consulted with immediate neighbours (via letters and site meetings) and wider community (during public consultation meetings) and ammended accordingly to allow for changes requested. Please see Appendix III - External consultation record for details. |
| OTHER INFORMATION | None |
| SIGNED & DATED | Agata Baranska, 15th of June 2016 |

| REQUEST FOR DETERMINATION UNDER THE E.I.A. (FORESTRY) (SCOTLAND) REGULATIONS 1999 | |
|---|---|
| OPERATION | Road Construction (please see Maps 7 -Planned Operations) |
| LOCATION | Central Sutherland Forests |
| GRID REFERENCE | NH 5431 9916 |
| IS THE LOCATION OF THE PROPOSED WORKS WITHIN A "SENSITIVE AREA", AS DEFINED IN THE REGULATIONS? IF SO, WHAT TYPE OF SENSITIVE AREA? | No |
| IF OPERATION IS AFFORESTATION, DEFORESTATION OR FOREST QUARRIES, WHAT AREA IS INVOLVED? | N/A |
| IF OPERATION IS FOREST ROADS, TRACKS OR PATHS, WHAT IS SPECIFICATION AND WHAT LENGTH & WIDTH IS INVOLVED? | Forest Road Construction (Cat 1a) Belinoe - 740m long - 15m wide at NH 5722 9291 Badarach Wood - 160m long - 15m wide at NH 5288 9796 Gruids TP - 30m long - 15m wide at NC 5663 0244 Rhelonie south - 1540m long - 15m wide at NH 5342 9782 Rhelonie north - 200m long - 15m wide at NH 5379 9801 Inveroykel north - 145m long - 15m wide at NH 4809 9961 |
| IS THE PROPOSED OPERATION IMMEDIATELY ADJACENT TO AN AREA OF THE SAME PROJECT TYPE WHICH HAS BEEN COMPLETED SINCE 6TH SEPT.1999? IF SO, GIVE DETAILS. | Inveroykel north, Rhelonie south and Badarach Wood projects are not extension of existing roads. All of the remaining proposed roads are extension of existing roads. |
| PROPOSED TIMING | Roading - 2016 to 2026 |
| STATE ANY PERCEIVED IMPACT ON THE FOLLOWING: | |
| ARCHAEOLOGY | No impact is anticipated. Full GIS record exist and archaeology will be identified by workplan process and walk over survey prior to commencement. |
| CONSERVATION | No environmental impact is anticipated. Full GSI record exists and species/habitat interest will be identified by workplan process and walk over survey prior to commencement. |
| LANDSCAPE | No landscape impact is anticipated from internal roading. |
| WATER | No impact is anticipated. |
| RECREATION / ACCESS | The expansion of the forest road network will improve the access and recreational value of the forest |
| PEOPLE | No issues foreseen |
| OTHER INFORMATION | None |
| SIGNED & DATED | Agata Baranska, 15th of June 2016 |

Forestry Commission Scotland

Appropriate assessment of forestry proposals which are likely to have a significant effect on a European site.

(The Conservation of Natural Habitats, &c.) Regulations 1994. Regulation 48.)

1a. Name of European site affected by the application and current designation status.

1. Caithness and Sutherland Peatlands SPA, SAC & RAMSAR

1b. Name of Component SSSI if relevant

Grudie Peatlands

2. Features of European interest, whether priority or non-priority; and conservation objectives for qualifying interests

Conservation objectives for qualifying interests:

a) Caithness and Sutherland Peatlands SPA:

- Black-throated diver (*Gavia arctica*)
- Common scoter (*Melanitta nigra*)
- Dunlin (*Calidris alpina schinzii*)
- Golden eagle (*Aquila chrysaetos*)
- Golden plover (*Pluvialis apricaria*)
- Greenshank (*Tringa nebularia*)
- Hen harrier (*Circus cyaneus*)
- Red-throated diver (*Gavia stellata*)
- Short-eared owl (*Asio flammeus*)
- Wigeon (*Anas penelope*)
- Wood sandpiper (*Tringa glareola*)
- Merlin (*Falco colimbarus*)

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained.

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

b) Caithness and Sutherland Peatlands SAC:

- Acid peat-stained lakes and ponds
- **Blanket bog**
- Clear-water lakes and lochs with aquatic vegetation and poor to moderate nutrient levels
- Depressions on peat substrates
- Very wet mires often identified by an unstable 'quaking' surface
- Wet heathland with cross-leaved heath
- Otter (*Lutra lutra*)
- Marsh saxifrage (*Saxifraga hirculus*)

To avoid deterioration of the qualifying habitats (listed above) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features.

To ensure for the qualifying habitats that the following are maintained in the long term:

- Extend of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

c) Caithness and Sutherland Peatlands RAMSAR site:

- Dunlin (*Calidris alpine schinzii*), breeding
- Graylag goose (*Anser anser*), breeding
- Breeding birds assemblages
- Blanket bog

To avoid deterioration of the qualifying habitats and habitats of the qualifying species (listed above) or significant disturbance to the qualifying species and habitats, thus ensuring that the integrity of the site is maintained. Please see points a & b for specific requirements.

2. DETAILS OF PROPOSAL

Name: Central Sutherland Land Management Plan

Applicant: Reference: 030/516/401

Description of proposal: Agreement of a Land Management Plan for the National Forest Estate in Central Sutherland, along with a Designated Site Planning Section covering multiple designated sites. This plan sets out what management through the Land Management Plan will be carried out and also specific measures for management of the designated sites. The overall aim of the plan is to set out the long-term aims for the NFE in Central Sutherland, agree specific measures that will benefit the designated sites, and also show how Forest Enterprise Scotland will manage operations to mitigate any potential damage or disturbance.

Operations:

- Clearfell
- Restocking
- Deer management.
- Specific management operations for qualifying species, including pulling of the forest edge away from a designated site boundary, modification of ground vegetation and tree canopy structure in relation to open habitat conservation and marking and monitoring of qualifying features

Mitigation:

The proposal is over ten breeding seasons therefore there is potential for disturbance to breeding birds. Area of Caithness & Sutherland Peatlands SPA under FES management is relatively small (1261 ha in total, about 0.87% of the total area of the designation), area which might be affected by operations is even smaller. As part of operations, mitigation is included to reduce environmental impacts of proposals on breeding birds. This includes:

FCS Guidance Note32 –Breeding birds in Scottish Forests will be implemented to ensure that no breeding birds will be disturbed linked to forestry works.

Bird surveys will be undertaken prior to operations taking place; additional surveys will be undertaken when resources allow. Mitigation will be planned to correspond with FC Guidance Note 32.

Otter survey will be carried out prior to felling and/or ground preparation and all the works will be carried out as per FCS Guidance Note 35c – Forest operations and otters in Scotland.

4. Assessment of impact on European interest.

4.1

Is the proposal directly connected with or necessary to the management of the site?

NO (if Yes go to 5.)

4.2

Is the proposal likely to have a significant effect on the European interest on the designated site? No (if yes assess impact on site)

The restructuring of the forest - pulling back the forest edge away from the boundary of the designated site results in increase of open space available to birds for breeding and foraging, and is likely to improve the hydrology of the designated peatland. All the forest operations will follow the UKFS best practice requirements. FC Guidance note 35c: Forest operations and otters in Scotland will be adhered to. FC Guidance note 32: Forest operations and birds in Scottish forests. The proposal will benefit the qualifying species and habitats.

Conclusion – Significant effect unlikely.

4.3 Summary of assessment in relation to possible impacts

N/A

4.4 Any other comments

N/A

4.5 What would be the outcome on the site if the proposals not approved.

If these proposals were not approved, there would be restriction on the development of beneficial habitat preservation and restructuring.

5 Conclusions

Will the proposal adversely affect the integrity of the European site:

No

6 Conditions required (if any)

None required, as mitigation built into planning and operational phases.

Signed

Woodland officer/Area Officer:

Date :

Ops Manager/ Conservator:

Date:

Central Sutherland Land Management Plan 2016 - 2026

Forestry Commission Scotland

Appropriate assessment of forestry proposals which are likely to have a significant effect on a European site.

(The Conservation of Natural Habitats, &c.) Regulations 1994. Regulation 48.)

1a. Name of European site affected by the application and current designation status.

River Oykel - SAC

1b. Name of Component SSSI if relevant

2. Features of European interest, whether priority or non-priority; and conservation objectives for qualifying interests

SAC

- Salmo salar* – Atlantic salmon
- Margaritifera margaritifera* – Freshwater pearl mussel

SAC qualifying features:

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying species that the following are maintained in the long term:

- ⌚ Population of the species, including range of genetic types for salmon, as a viable component of the site
- ⌚ Distribution of the species within site
- ⌚ Distribution and extent of habitats supporting the species
- ⌚ Structure, function and supporting processes of habitats supporting the species
- ⌚ No significant disturbance of the species
- ⌚ Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species.

2. DETAILS OF PROPOSAL

Name: Central Sutherland Land Management Plan

Applicant: Reference: 030/516/401

Description of proposal: Agreement of a Land Management Plan for the National Forest Estate in Central Sutherland along with a Designated Site Planning Section covering multiple designated sites. This plan sets out what management through the Land Management Plan will be carried out and also specific measures for management of the designated sites. The overall aim of the plan is to set out the long-term aims for the NFE in Central Sutherland, agree specific measures that will benefit the designated sites, and also show how Forestry Enterprise Scotland will manage operations to mitigate any potential damage or disturbance.

Operations:

Only small area of **SAC** lies within the NFE and even smaller might be affected by proposal within the Central Sutherland LMP (2016 – 2026). The only activities planned within the Plan period are:

- Felling
- Deer management
- Restocking (adjacent to the SAC)

Forest operations within the catchment of the River Oykel SAC will comply fully with Forests & Water Guidelines and Operations in FWPM Catchment Guidance. This mitigation is built into planning and work practices for ongoing forest work..

All civil engineering projects and temporary water crossings will meet SEPA best practice standards (e.g. CAR General Binding Rules & PPG) so that diffuse pollution is controlled. Water crossings will not represent a barrier to salmonids and will comply with SEPA upland river crossing standards.

Riparian native woodland will be created and/or maintained along tributaries flowing into the SAC to benefit salmonids, freshwater pearl mussels and water quality. The new riparian zone will act as a natural buffer to protect the water course from neighbouring operations.

FES will also contribute as required to wildlife crime initiatives to reduce the threat of poaching.

Finally all survey works will be undertaken using licensed and experienced ecologists.

FES has previously used mechanical cutting of rushes and rough grasses combined with subsequent cattle grazing to manage SSSI's fen meadow. This approach has provided some benefits to the fen, however, due to management difficulties and associated costs, controlled burning is now being considered as an alternative.

4. Assessment of impact on European interest.

4.1

Is the proposal directly connected with or necessary to the management of the site?

NO (if Yes go to 5.)

4.2

Is the proposal likely to have a significant effect on the European interest on the designated site? No

Felling of conifer crop planted close to the river bank will remove the non-native trees and their possible negative impact on the water quality. All forest operations will fully comply with Forest & Water Guidelines and Operations in FWPM Catchment Guidance. All civil engineering projects and temporary water crossing will meet SEPA best practice standards, so the diffuse pollution is controlled. Water crossing will not represent a barrier to salmonids and will comply with SEPA upland river crossing standards.

Riparian woodland will be created and/or maintained along tributaries flowing into the SAC to benefit salmonids, FWPM and water quality.

Conclusion – significant effect is unlikely

4.3 Summary of assessment in relation to possible impacts

N/A

4.4 Any other comments

None.

4.5 What would be the outcome on the site if the proposals not approved.

If these proposals were not approved, there would be significant and damaging restriction on the development of beneficial riparian woodland. In addition, restructuring of the forest with greater diversity of species and greater area of native woodland would not be achieved.

5 Conclusions

Will the proposal adversely affect the integrity of the European site:

No

6. Conditions required (if any)

None required, as mitigation built into planning and operational phases.

Signed

Woodland officer/Area Officer:

Date :

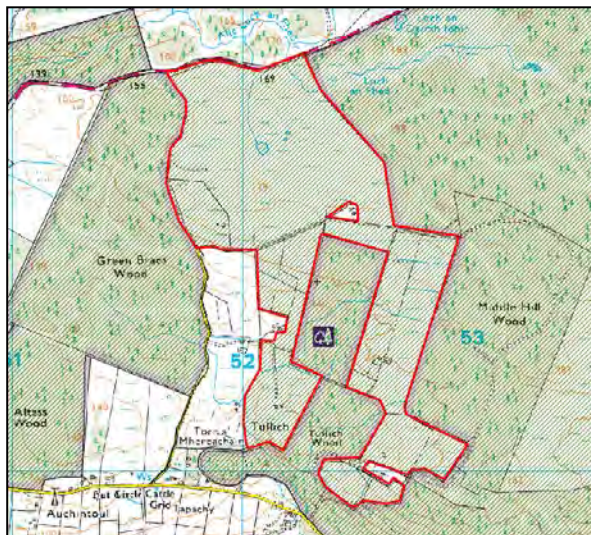
Ops Manager/ Conservator:

Date:

Archaeological Walkover Survey

This short report results from a prospective archaeological walkover survey undertaken by Angus Mackie (FESHO Planning Support Manager / North Highland FD Environment Support Manager) and Matt Ritchie (Archaeologist) on the 19th of May 2015.

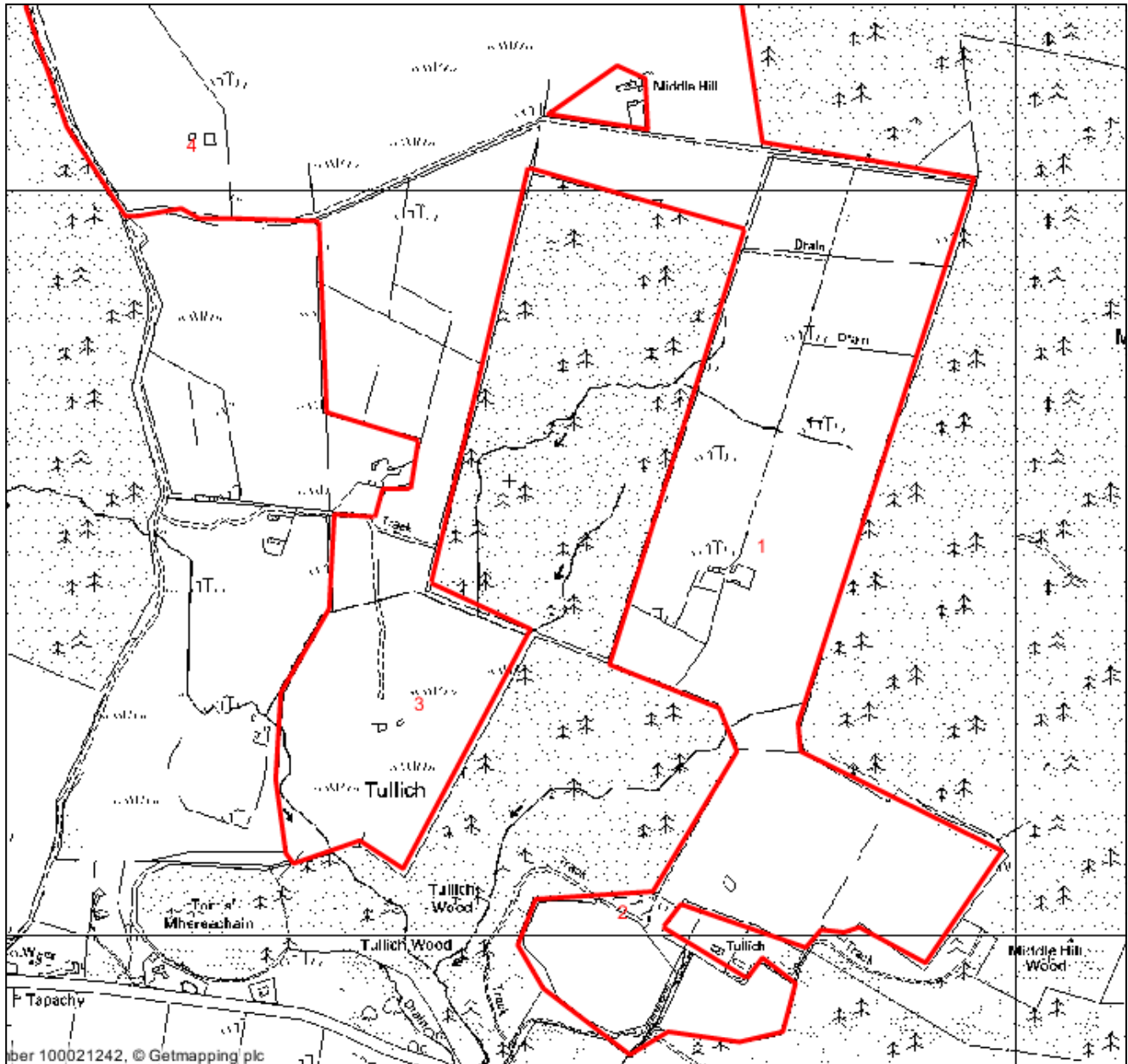
An area of upland moorland and previously enclosed pasture in the Kyle of Sutherland has recently been acquired by North Highland Forest District (centred on NC 524 007; *outlined in red below*). This short archaeological report aims to support and inform the subsequent Land Management Plan.



There are no archaeological or historic environment features on record either on Canmore or on the Highland Historic Environment Record. Following a Desk Based Assessment (consulting historic maps and aerial photography) and a prospective walkover survey, four sites of local or regional importance have been identified but were not recorded in detail.

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Woodburn Farm Archaeological Survey



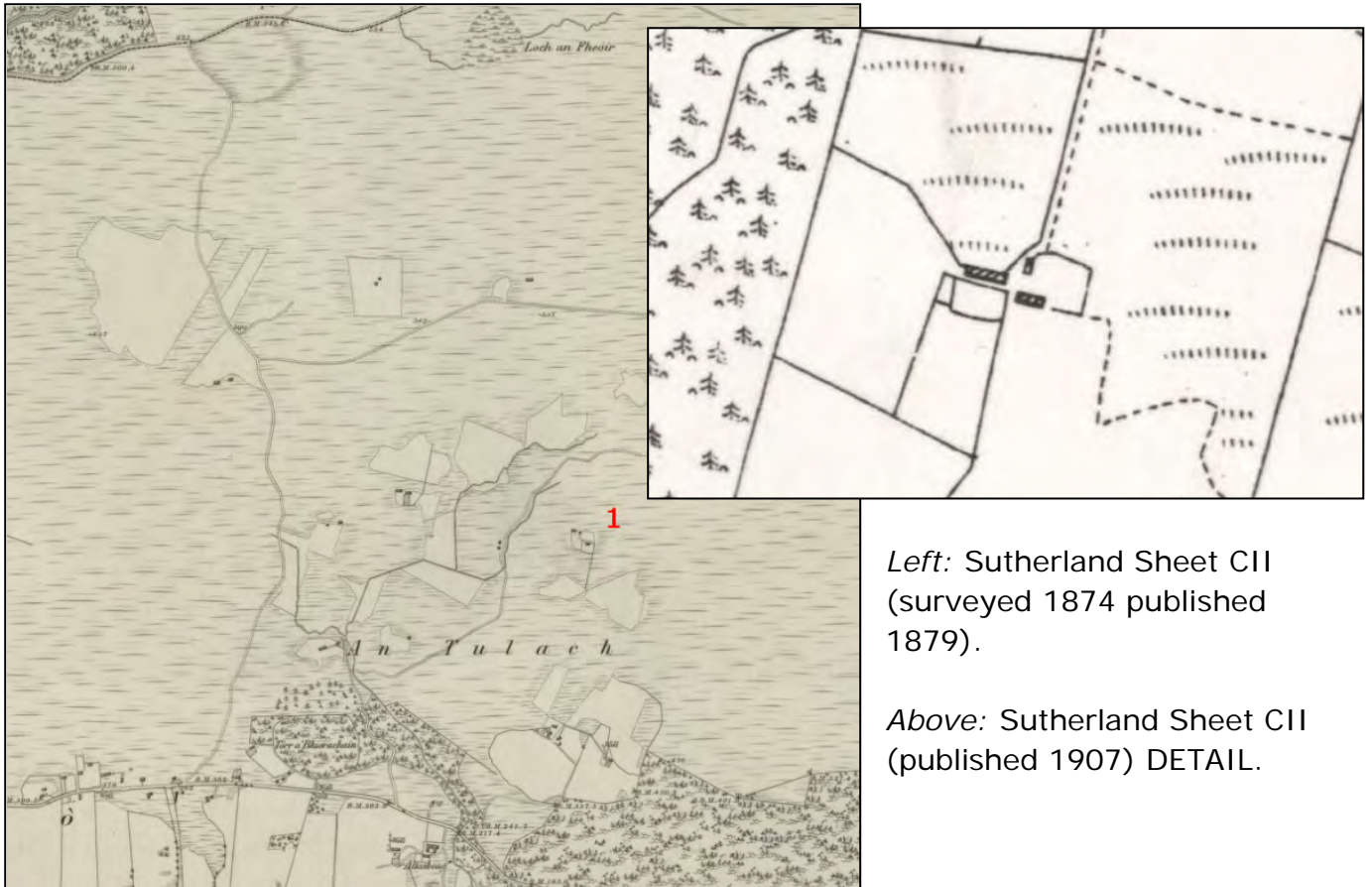
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- [1] Farmstead (NC 525 004)
- [2] Sheepfold (NC 525 004)
- [3] Building (NC 521 002)
- [4] Building and enclosure (NC 519 010)

Woodburn Farm Archaeological Survey

[1] Farmstead (NC 525 004)

This farmstead is depicted as three roofed buildings set within several enclosures on the Ordnance Survey 1st edition 6" map in 1879 and on the OS 2nd edition map in 1907.



Left: Sutherland Sheet CII (surveyed 1874 published 1879).

Above: Sutherland Sheet CII (published 1907) DETAIL.

The ruined farmstead comprises one gable-ended unroofed house with attached byre, opening out onto an enclosure with several adjacent buildings: to the SE is a long building built onto an enclosure wall; and to the NE is a likely cartshed, open at its S end. There are also at least two smaller huts, one (immediately to the S of the cartshed) with unusual multiple aumbreys within its walls. The enclosure boasts a very fine monkey puzzle tree.

The farmstead and an area around it should be left clear of any forestry establishment.



Woodburn Farm Archaeological Survey



View overlooking farmstead from N, view facing SSE.



View facing WNW over small hut and along length of main byre house.



View facing N into possible cartshed.

Woodburn Farm Archaeological Survey



View facing SE over second long building.

Woodburn Farm Archaeological Survey

[2] Sheepfold (NC 525 000)



View facing NW.

The site is depicted as a collection of roofed buildings on Ordnance Survey 1st edition maps in 1879 (*above right*) and as one remaining building depicted as unroofed on the OS 2nd edition maps in 1907 (*below right*). This building has been subsequently converted into a sheepfold (now disused)



The remains will be left unplanted within existing grazed enclosure.

The area to the E (depicted as a range of roofed buildings on the OS 2nd edition maps in 1907) is a domestic property outwith the national forest estate.



Woodburn Farm Archaeological Survey

[3] Building (NC 521 002)



One surviving building and two circular stack (situated immediately to the NE) stands survive in ruins, depicted as the easternmost of a pair of roofed buildings on Ordnance Survey 1st edition maps in 1879 and on the OS 2nd edition maps in 1907 (*below*). The western building has been removed.

The remaining building and stack stands should be marked off and left clear of any forestry establishment.



Woodburn Farm Archaeological Survey

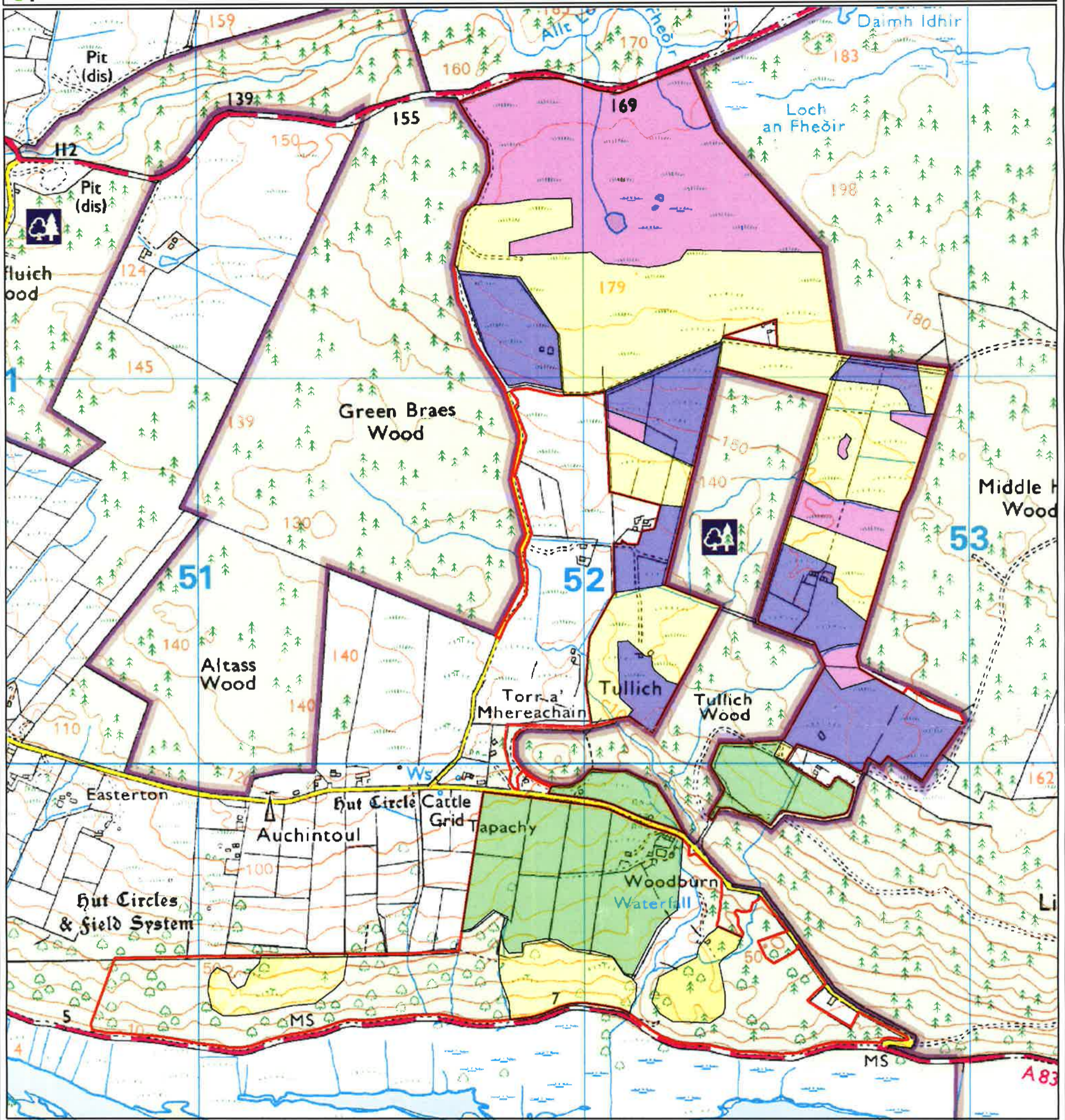
[4] Building and enclosure (NC 519 010)



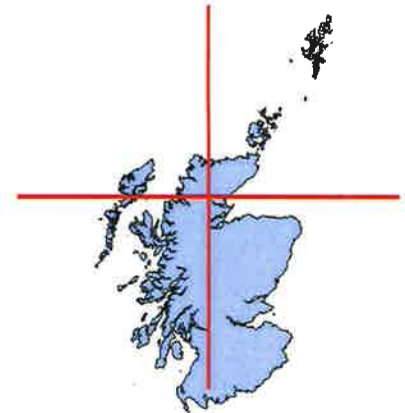
A ruined building and associated enclosure are visible as low spread drystone walls in unimproved rough pasture. The building is not depicted on the Ordnance Survey 1st edition maps in 1879 and is depicted as roofed on the OS 2nd edition maps in 1907 (*below right*).



The building and enclosure should be marked off and left clear of any forestry establishment.



- Variable Density Native Woodland
- Retain in agriculture
- Priority Habitat
- Productive Woodland
- Woodburn Farm
- Conservancy Boundary



Woodburn Farm, North Highland Forest District

Agricultural Assessment

This assessment has been produced following a walkover by myself, accompanied by Agata Baranska, Planning Technician NH FD, on 19/05/2015

We arrived at Woodburn at approximately 11:00 and departed at 13:30. Weather was dry but overcast. Conditions were generally wet underfoot following recent periods of heavy rain.

Woodburn Farm is registered to FCS as agricultural land and has been allocated SGRPID Farm Code 829/0247.

Background.

Woodburn farm was offered for sale, as 3 lots, on the open market, in mid 2014. Lot 1 comprised mainly grade 4.1 on the James Hutton Institute (JHI) agricultural land capability scale and was noted as being some of the better agricultural land in the locality. Accordingly FCS decline to offer for this lot.

FCS was successful in purchasing lots 2 and 3. Within these lots 113.69 ha is registered as agricultural land with SGRPID

Within this approx. 12ha is JHI classification 4.1 with the balance being JHI 5.3. It is important to note that these are Land Capability Classifications and take no account of current nutritional status, vegetation or historical land use.

It is quite clear to me that Woodburn Farm has not been farmed intensively for a number of years now and has almost totally reverted to poor quality rough grazing being poorly drained, internal boundaries dilapidated to the point on non-existence and poor quality (agriculturally) vegetation.

At the time of writing the land was not subject to any tenure although it was noted that unauthorised grazing was taking place with circa 50 ewes with lambs and a small number of rams and followers present on the land. There were also evidence of dry dung patches from both cattle and horses indicating their presence approx. 3 months previously. There was also a cattle feed ring on FCS property, close to the boundary with the neighbouring croft to the west, although indications are that this has not been used in the last 3 months or so.

Woodburn Farm Agricultural assessment

Land assessment

For the purposes of this exercise the land has been split into a number of polygons of similar vegetation types.

1. This is an area of circa 53 ha of rough grazing. The area is very wet and boggy with vegetation quality very poor, compromising mosses, lichens, sedges and poor quality heather. There are a number of naturally regenerating trees. All indications point to this area not being grazed for a number of years. The boundary not fully walked and therefore no full assessment made but it is certainly in very poor condition bounding polygons 3 and 7.
2. This 5ha parcel is stock proof on all sides and while there are odd patches of better quality dry grassland (circa 1/5th of the area) it is generally wet and rush infested. Consequently grazing value is limited.
3. Circa 8 ha. This polygon contains old field systems. However dilapidated turf dykes, drystone dykes and ditches and poor quality vegetation suggest that no active management has taken place for a considerable period (40 – 50 years?). The eastern boundary fence is in poor condition and there is no boundary between this and polygon 4.
4. Approx 1ha, this area is very badly poached and contains a cattle feed ring that looks to have been used for feeding cattle circa 3 months ago. No boundary to polygons 3 and 5.
5. Circa 2 ha, poor quality vegetation and very wet. No boundary to polygon 4. A few rams and ewe hogs were seen grazing the combined parcels of 3/4/5.
6. 8.8 ha rough grazing. Poor quality rough grazing. Eastern boundary virtually non-existent allowing livestock free access to the adjacent woodland. There is a small area to the south of this polygon that is classified as JHI 4.1 but on the ground it is indistinguishable from the rest of the polygon.
7. 2.8ha of poor quality rough grazing. Wet, rushes and heaths. Boundary with 8 not stock proof.
8. This area of circa 2.5 hectares runs is part of a larger area made up of 8 & 9 but is noted separately as it is drier semi natural grazing. Whilst I accept that this may have some reasonable agricultural value the cost of fencing this off would outweigh productive benefits.
9. Circa 18 ha. Very poor quality grazing which is extremely wet in places – to the extent that this would restrict the movement of livestock and has the potential for stock to be lost in places. A handful of sheep were seen grazing this polygon.
10. This 5ha polygon disappointed as it looked “greener” from aerial photography and is classified as JHI 4.1. In actual fact it mainly comprised poor rough grazing and rushes. There were a few ewes and lambs present and the gate was open to polygon 11.

Woodburn Farm Agricultural assessment

11. This polygon comprised circa 5 ha in 2 separate fields of better quality improved grassland. All JHI class 4.1. Although not fully stock proof the boundaries were "reasonable". Approx. 40 ewes and lambs were present and there is evidence of them being fed in this area.

Summary

While it was no doubt a better holding in the distant past this unit has received little attention in recent years and has largely reverted to poor quality vegetation.

Excluding polygon 11 the carrying capacity of the holdings is likely to be in the region of 40-50 breeding sheep but even then considerable winter supplementary feeding would be required. It is my view that the considerable fencing costs required to reinstate fencing, improve and renew drainage and improve access would far out-weight any agricultural production. Such costs would not be good value to the public purse and I am therefore content that polygons 1-10 be moved to woodland creation.

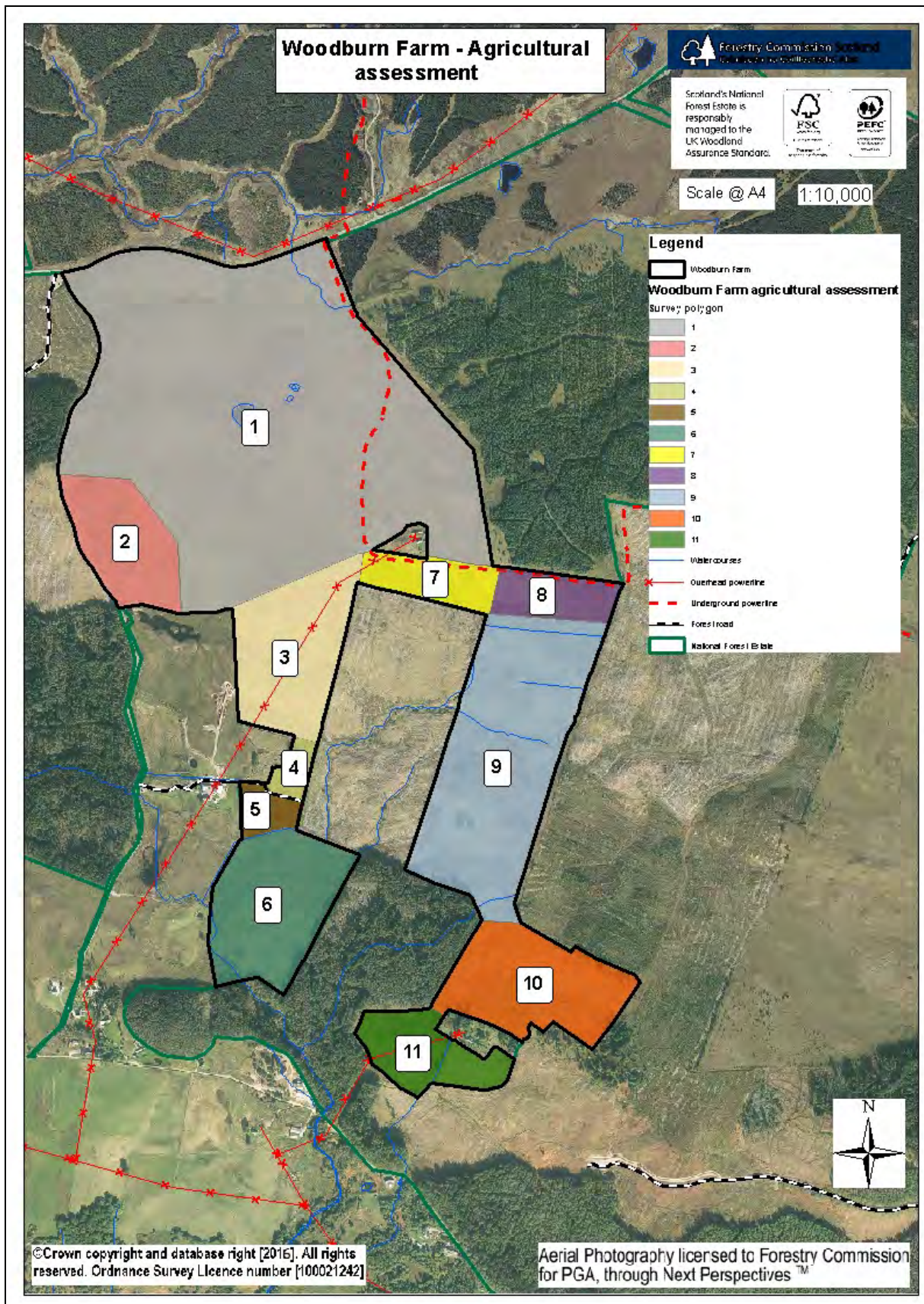
Polygon 11 is better land, mainly dry semi improved grassland and I would not wish to see this planted. Not only is this land JHI 4.1 but in the context of the limited amount of better land in the area it should remain in agriculture.

Public bodies are currently getting a strong steer from Scottish Government to make parcels of grazing land available to New Entrants to agriculture with a minimum security of tenure of 5 years. It is my opinion that this parcel would fit well within these objectives.

Robin Waddell
Agricultural Advisor
Forest Enterprise Scotland

19th May 2015



Woodburn Farm Agricultural assessment



Legend

Woodburn_North_-_NVC_polygons

BAP_PRYHBT

-  Blanket bog
-  Lowland dry acid grassland
-  Oligotrophic and dystrophic lakes
-  Upland flushes, fens and swamps
-  Upland heathlands
-  none
-  Forest road
-  Blocks

Scale @ A3

1:7,000

